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Sanitary Engineer

Plumber and Steamfitter of Canada

Vol. XVII.

PUBLICATION OFFICE, TORONTO, JANUARY 1, 1923

No. 1



To Our Patrons:--

In extending our greeting to the trade for the coming year, we wish to refer briefly to the Empire organization.

The "Emco" line of plumbing and sanitary fixtures represents the result of many years of practical and specialized experience in this class of work. As designers and originators of making fittings for the plumbing trade, our engineering department is kept in touch with the most progressive ideas of the time. The successful development of many such ideas keeps the "Emco" line strictly up to date.

Coupled with this long experience we have a modern, well-equipped shop and foundry with a staff of trained mechanics for turning out the work economically and to a high standard of quality. All of our castings are made under expert mechanical analysis insuring uniformity and quality.

With your past favors in mind we look forward to further opportunities of serving your requirements during the coming year. Our aim is to serve, and by serving, to secure and hold the confidence of our patrons and friends.

Empire Brass Mfg. Co. Limited

London and Toronto, Canada



PUSSYFOOT

Stands out prominently as superior to all other

Closet Tanks

The New Patent Ballcock

with the name cast on the large Chamber finds favor everywhere because of its Silence, Rapid Action, Simple Mechanism

The attractive design and beauty of the tank itself, combined with its durability, is another feature and it is shipped to you securely packed in case as here shown, which ensures it reaching you in good condition without any of those annoying mishaps which frequently cause delay —

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THE CANADA METAL CO., LIMITED

Toronto, Hamilton, Montreal, Winnipeg, Vancouver.

SPECIFY Pussyfoot to your Jobber, and make sure you get it.

THE CANADA METAL COMPANY

LIMITED

Montreal Hamilton TORONTO Winnipeg Vancouver

Include Refinement in your Service by Selling the **QUIETUS**



OUR NO. 20 "Quietus" Syphon Jet closet as its name implies is of the so-called "silent" type. It operates so quietly that its action when flushed cannot be heard outside of its immediate environment; yet it possesses the same unhesitating strong action for which all Canadian Vitreous closets are noted.

IT IS modelled on simple dignified lines; it is vitreous through and through and its lustrous shimmering white-glazed surface coupled with its special attribute of real quietness of operation commends it to the discriminating buyer who would include the utmost of refinement in his choice of toilet-room equipment.

CANADIAN POTTERIES
LIMITED
SAINT JOHNS
QUEBEC

Sales handled exclusively through recognized jobbers in plumbing supplies.



Farmers Thousands



The Anthes Syphon

The Anthes syphon is the heart of the disposal system.

Regularly, unfailingly, year after year, it will carry on its appointed work. There are no trick parts to get out of order, nothing to wear out nor rust out; once installed it is a permanent fixture.

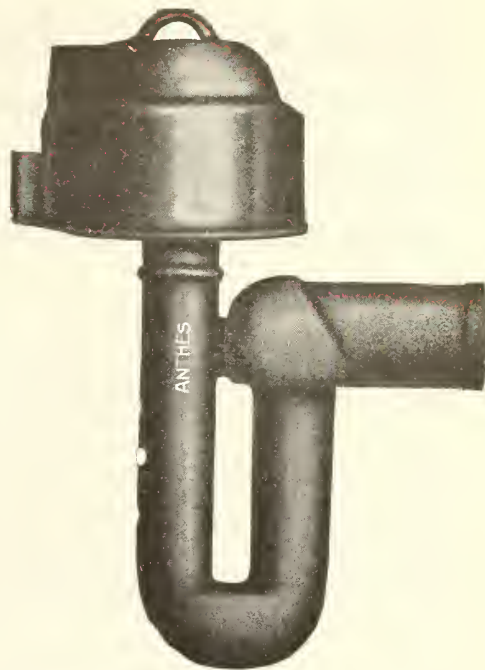


Will Buy of Disposal Systems in 1923

A bumper crop and fair prices have put the farmer again on his feet. To-day, with his debts paid and money in the bank he is "sitting pretty."

Early next spring, thousands of these farmers, disgusted and sore because of the annoyances of an outdoor toilet in winter, will be ready to sign on the dotted line for the first sanitary engineer who talks Disposal Systems to them. Many will sign right now if you go after them properly.

—And when you get this business, insist that Anthes soilpipe and the Anthes Syphon be used; you will thus be able to give your customer a permanent, satisfactory job, which will be right and stay right from the beginning.



Anthes Foundry
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Toronto and Winnipeg

Manufacturers of
Cast Iron Soil Pipe and Fittings

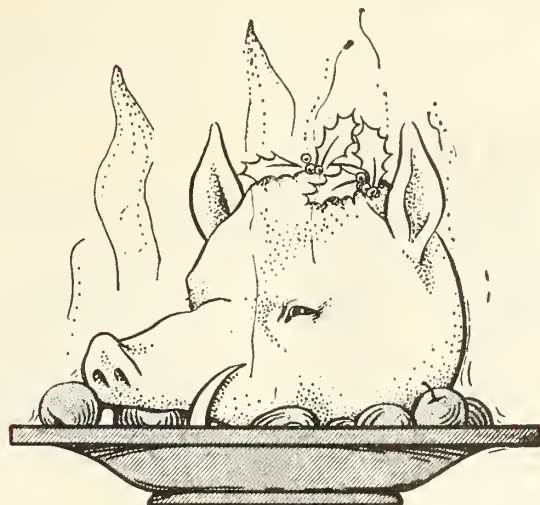
Markets

Sanitary Engineer Marketing Reports are eagerly looked for by progressive plumbing and heating Engineers of Canada.

A thorough knowledge of prevailing prices and tendencies in the trade is an absolute necessity for the conduct of any business in these days of frequent price fluctuations.

Sanitary Engineer Marketing Reports are compiled at considerable expense. We are determined to keep them reliable, complete, and up-to-date.

Sanitary Engineer
Plumber and Steamfitter of Canada



Happy New Year

Were we to allow the holiday season to pass without extending to the sanitary engineers of Canada heartiest greetings, good wishes and warmest thanks for favors received, we would enter 1923 with our greatest debt undischarged.

In the coming year we are going to turn in as never before to make more Ruud Heaters—and to tell the public more about them. We are going to work harder than ever to make it easy for you to sell Ruud Heaters to your customers.

Selling gas water heaters will not, alone, make 1923 a big business year for you; but as we see it now, with the efforts we shall make to put over Ruud Heaters to the public, you will be able to devote most of your time to other matters; just show a Ruud in your window and it will sell itself; better stock up now in anticipation of spring requirements.

May 1923 bring you good health, good luck and good business.

Ruud Manufacturing Co.

Toronto

Clean Land



ness was a fetish in the of the Pharaohs

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They carried this passion for personal cleanliness so far that they even removed all superfluous hair from their bodies and considering they had no razors and so had to pull the hairs out with pinchers, it must be admitted that they were sincere little members of the Sanitary Club.

But they didn't wash very often. They had no bath tubs. Water was scarce, and was not so satisfactory a cleanser as the oils and unguents they used. These oils were absolutely necessary to protect their lightly clothed bodies from the hot suns and burning winds of that torrid land.

To-day, in Canada, running around in abbreviated skirts with one's body smeared with oil is not being done by our best people.

To-day Canadians need no retinue of slaves to keep them clean. To-day a **"Standard"** Sanitary bathroom affords every convenience, beauty and luxury that man can desire.

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"Standard" Advertising is spreading this gospel broadcast.

The sanitary engineer who stocks, displays and recommends **"Standard"** Fixtures will find his sales path smooth.



Standard Sanitary Mfg. Co. Limited

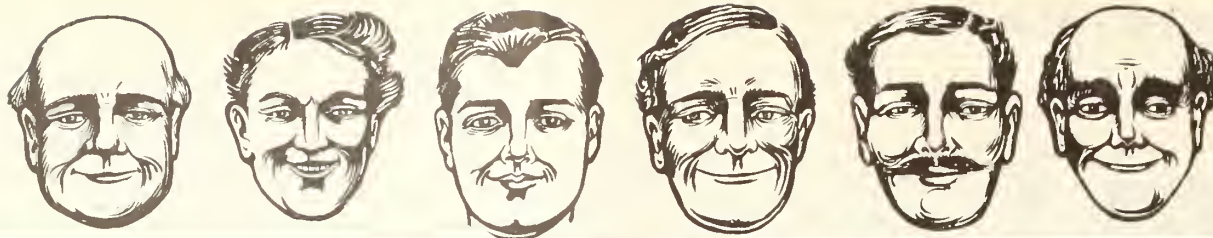
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145 Market Street East

Hamilton Store:
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We furnish you with a big leather covered loose leaf book containing suggested retail prices on over 3,000 items in the plumbing and heating business. As cost prices change we change the sheets in your book. The cost of this service is about 10 cents per day or the price of a cigar.

You owe it to your business to try it out for a year. It must have some merits or your fellow members of the trade would not use it.

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*Try
it
Out*



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Date.....

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You may enter our order for your Plumbing and Heating Resale Price Service on the following terms and conditions:—

You are to furnish us with a loose-leaf Resale Price Book on Plumbing and Heating Material as supplied to the Plumbing and Heating Trade throughout Canada for which we agree to pay you the sum of \$36.00. Payment to be made as follows:—\$9.00 with this order and three payments of \$9.00 each at the end of each 3 months' period following. We agree to remit to above payments by Money Order and failing to do this, will accept your sight drafts with exchange.

You are to keep this book revised for the next 12 months by sending us whatever Change Sheets are issued from your office.

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It is distinctly understood that these are suggested Resale Prices and we are under no obligation or Agreement to maintain the prices compiled by you.

Accepted by:

Signed

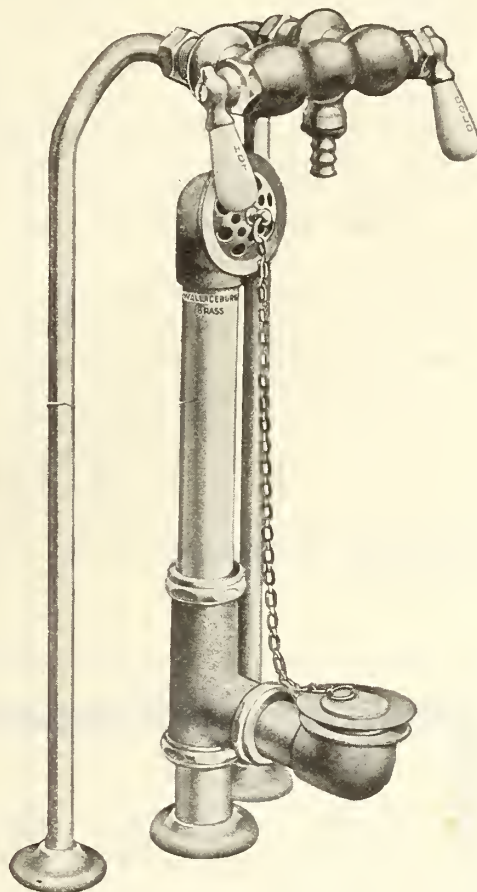
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A
BATH
ORNAMENT



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TRADE
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* * * * *

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G. M. Price, 10 Victoria St.
Telephone Uptown 945



“Here We Suffer Grief and Pain”

We find, however, in business that most of our cares and troubles are due to our own incompetence or carelessness.

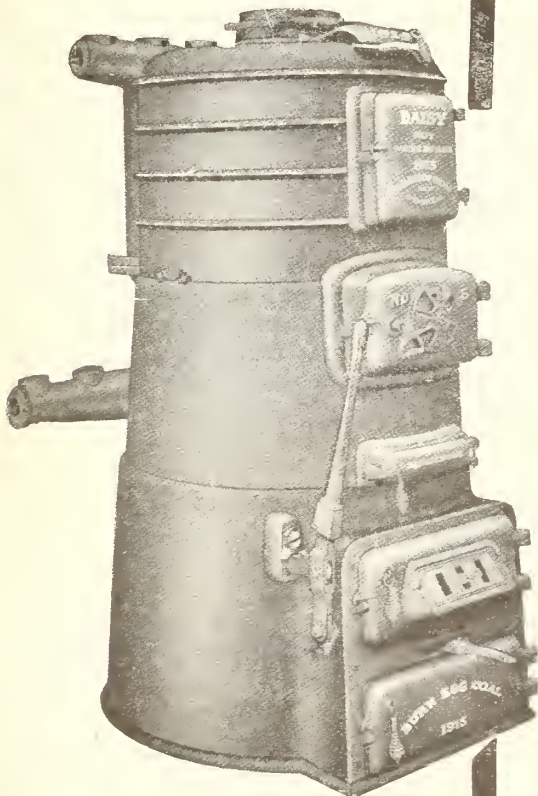
The sanitary engineer who is consistently losing money on contracts has only himself to blame; the use of an ALLPRISER would automatically put him right in making out his estimates.

Allpriser takes more grief out of plumbers' lives than any other business help on the market. You can't go wrong on a price when you use Allpriser.

WRITE TO-DAY

K. B. ALLISON

4 Irwin Avenue - Toronto, Ont.



A New Sales Record

Many plumbers and steam-fitters are out to establish a new sales-record on “Daisy” boilers during 1923. They have been inspired by encouraging results in past years through satisfied customers and good profits. They realize that the “Daisy” boiler is backed by a reputation.

Our customers are going to again benefit by our service during the coming year. Are you going to be one of them?

We invite you.

Warden King Limited
MONTREAL

Branch Office: 136 Simcoe Street, TORONTO

SANITARY ENGINEER

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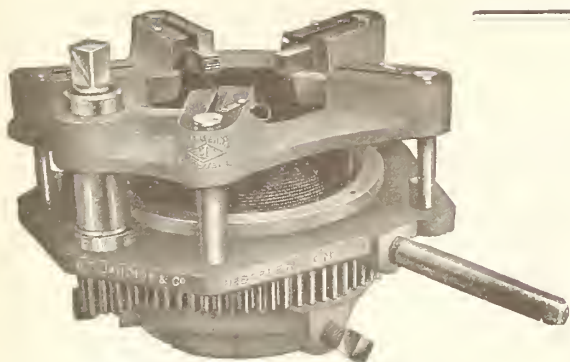
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In operation the cutters open out to cut the tapered thread. The dies cut only with the mouth of the cutter. Lead screw insures perfect pitch and form of thread. The machines are light and compact, have a minimum of working parts, strong and durable. All threads 1/8" to 12" are threaded at one cut and by one man.

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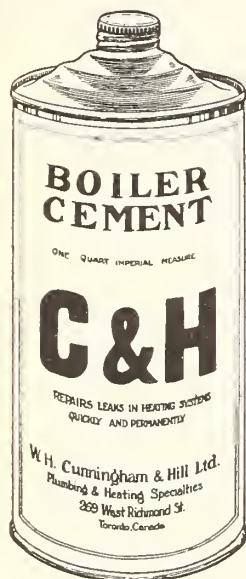
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C. & H. Boiler cement for repairing leaks in Boilers and heating systems. Poured into the boiler it mixes instantly with the hot water and is carried through the system. As soon as it reaches the leak and strikes the air it congeals and makes a permanent repair—water-tight and steam tight to a pressure of 500 pounds.

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Toronto, Canada

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Sanitary Engineer

Plumber and Steamfitter of Canada

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TORONTO, JANUARY 1, 1923

NO. 1

Tax Counter Checks Marked "Paid"

Customs and Excise Official Points out Some Technicalities in
Receipt Tax Regulations—Cash Register Manufacturer Advises
Striking Words "This is a Receipt" off Printing Machinery—
Would Not Use Post Cards for Receipts

MANY QUESTIONS are likely to be raised by the trade in connection with the application of the receipt tax, effective from January 1, 1923. While some of the regulations are sufficiently clear, there are others which may be misconstrued. Discussing the subject with an official of the Toronto Department of Customs and Excise and some manufacturers, Sanitary Engineer secured some information which may assist in dealing with this subject, though no detailed rulings have been issued as yet and it is stated that none are likely to be issued from Ottawa until after the receipt tax has been made effective and specific complaints are brought to the attention of the authorities.

The chief division of opinion seems to be in connection with the provision which states "Counter sales slips and cash register tickets are not taxable, provided no words implying or stating acknowledgment of the receipt or the payment of money appear thereon." Some retailers have enquired if a cash register slip or counter check showing the amount involved is to be classed as a receipt for taxation purposes. A. E. McLean, sales manager of the National Cash Register Co., Toronto branch, stated to Sanitary Engineer that on a great many cash register slips the words are printed, "This is a receipt." With these words the cash register check constitutes a receipt and is, therefore, subject to tax on amounts of \$10 and over. In this connection, Mr. McLean stated: "We will have these words eliminated on new machines. Merchants are well advised to have this change made in their machines at once, as it is an easy operation and will save them much trouble. Some of the large department stores have already done so, anticipating that the check handed out from the cash register with these words on it would be subject to tax."

The official of the Department of Customs and Excise confirmed the foregoing concerning cash register slips. He gave it as his opinion that where a counter check is issued and the merchant marks the word "paid" on it that it constitutes a receipt and is subject to tax. It was pointed out that frequently merchants used the word "paid" on such checks and sometimes followed it with their initials. It was not thought that this would be a serious tax insofar as counter sales were concerned because very few customers asked for a signed receipt on a cash sale. Where it would be felt more would be on C. O. D. orders. Discussing this angle of the subject, it was pointed out that while the customer purchasing goods and paying cash over the counter would not necessarily require a signed receipt, that the customer ordering goods over the telephone on a C. O. D. basis would rather hesitate to pay any

considerable sum of money to a delivery boy without receiving a receipt which would be an adequate acknowledgment of the money paid. The possession of the parcel might be taken as sufficient evidence of the money paid in some cases but it would constitute a practice which would be open to abuse. Of course, the customer could be accorded the alternative of running an account for such orders, but this is undesirable to retailers. Generally speaking, it was thought the tendency would be for retailers to encourage more cash business so as to keep down the number of accounts over \$10 and to eliminate as many C. O. D. orders as possible so as to keep down the number of tax stamps they would be compelled to use.

It was the opinion of this official that the ordinary counter check showing goods purchased and amount, but not marked "paid" or bearing any other words implying a receipt, would not require to bear a tax stamp.

It was pointed out by this official that a cheque may not be shown to be in settlement of an account and, therefore, a signed receipt may be required by the debtor even though a cheque is used. The fact that a cheque may not be classed technically as a "receipt" also raises the possibility of certain debtors who pay by cheque requiring a signed receipt which is taxable.

Another practice which comes under the new regulations is the use of transfer cards in large stores. Certain department stores make use of such a card on which a number of small purchases are entered in various departments and payment made by the customer in a lump sum at the end of the shopping tour. This card is now stamped "paid" when the cash or a cheque is tendered and would ordinarily come under the regulations requiring it to be taxed when of \$10 or over.

Each signature of an employee on a pay roll being a receipt is taxable for each signature covering an amount of \$10 and over. Some of the large firms put salaries on deposit for employees in a bank and the employees put a tax stamp on withdrawal orders. In certain other cases two or three officials of the firm are on hand when the staff is being paid and no receipt is asked for from the employees.

Individual freight bills and periodical statements of same, acknowledging receipt of payment are taxable. An enquiry has been made if this includes "way-bills" which the railway freight handler signs in acknowledgment of the freight and which may bear record of freight classification and rate applying. It was pointed out that, while details of classification and rate chargeable may appear on the bill, the receipt conveyed by the signature of the freight handler is merely cover-

ing the merchandise, and is not taxable. The periodic statements of account issued to collect freight charges and receipted in the ordinary way are the ones which are taxable.

There is some division of opinion concerning the provision covering receipts in the form of letters forwarded by mail being taxable. Letters in an envelope must carry stamps which include revenue under the War Revenue Act so that tax is paid in that form. Asked as to whether or not postcards would come into use for the purpose, bearing only one cent postage, this official

thought it unlikely that any firms would care to show receipts so publicly.

Favors Mail Order

The provisions exempt remitter's counterfoil, being part of a taxable express money order. This counterfoil is the acknowledgment received for money paid for money order. It is suggested that in connection with mail order business where cash is paid in advance for merchandise and where such cash is generally forwarded by money order, that the customer has a receipt for

money paid without requiring the mail order firm to give it. To secure a receipt for money paid to the local merchant either by cash or cheque, a second tax applies.

E. M. Trowern, Dominion Secretary R. M. A., states that the intention of the government is evidently to exempt cash register checks and counter slips in cash transactions. He states that the provisions might mean that all cash register slips and counter checks are not exempt, but he is of the definite opinion that the retailer may not feel any concern in regard to such taxes.

Would Revise Business Income Tax

Proposals of Joint Conference on Taxation Understood to Include Recommendation that Business Income Tax be Put on Same Basis as Personal Income Tax—Exclude Gifts to Charities, Etc.—Recommend Flat Tax on Cheques of Two Cents

DISCUSSING the proposals of the joint conference on taxation which since being outlined in a previous issue of Sanitary Engineer have been put before various manufacturing, wholesale and retail associations, some better idea of probable final meaning of the recommendations has been gleaned. A group of resolutions was passed unanimously at that conference with the understanding that these were to be referred back to the national organizations concerned and that a second conference of representatives of these organizations would be held in Ottawa in January to put the resolutions in final form before the government.

It is understood that it is designed to make up any loss of revenue brought about by following out the recommendations, by reducing government expenditures and by slightly increasing the sales tax if necessary; that purchasers are to be furnished with invoices on which the amount of such sales tax to at least the extent of 2½ per cent. must be shown; that the regular rates of Sales Tax should apply to all purchases by or on behalf of the government. This policy is followed in connection with import duties and it is planned to make no exception under the Sales Tax.

Will Determine Status of Trade

Some discussion has also taken place concerning difficulties arising in connection with the value on which Sales Tax is assessed and as to the status of various branches of trade such as tin-smiths, harnessmakers, etc. Under the suggested regulations, it is understood that the Minister would be given power to determine the status of the individual or firm, subject to appeal to higher authorities. The recommendations of trade organizations on the subject are to be

considered in connection with such appeals. It is also understood that importers who sell in this country under exclusive selling rights should be classed for Sales Tax purposes as wholesalers in respect to importations and sales in Canada, under the proposal.

The proposal in connection with the status of certain branches of the trade such as tin-smiths, provides that those who produce goods which they wholly retail from stock over the counter in the premises where they are produced, to consumers, shall be compelled to collect sales tax on such manufactured goods if their turnover in such goods exceeds in value a set amount to be agreed upon by the organization which represents their interests. The proposals also include a clause, it is said, which provides that sales tax shall not apply on sales by retailers who manufacture or produce articles made to the order of individual customers and sold over the counter or in the premises where they were made direct to such individual customers.

Two-Cent Stamp on All Cheques

The proposal re the Stamp Tax on cheques was originally two cents on all cheques, drafts, bills of exchange or promissory notes, up to and including one hundred dollars and a flat rate of four cents for higher amounts. It is understood the manufacturers favor the further amendment of this proposal so that there will be but a flat rate of two cents on each cheque irrespective of amount.

It is understood the income tax on corporations also came in for some consideration, and that the suggestion was made that the normal tax of 10½ per cent. on the income of corporations exceeding \$2,000 per annum be reduced to

the present rate applying to individuals of 4 per cent. on incomes up to \$6,000 and 8 per cent. on all incomes over that amount without any surtaxes. It was also understood to be a recommendation that net loss from business for any taxable year be deducted from the net income of the succeeding year and that any unabsorbed balance be a deduction from the net income of the next succeeding year. Income Taxes payable to other authorities such as provincial or municipal governments should be counted as an expense of doing business and deducted from the taxable amount as well, according to the recommendations. The deduction of gifts to charities totalling not more than 15 per cent. of the taxpayers' net income should also be deducted from taxable income according to the proposals. The same provision would be applied to personal income tax and also including deductions of life insurance premiums not exceeding 5 per cent. of net income. Suggestions for simplifying the method of computing the tax are also made. Repeal is also suggested of the tax of 5 per cent. on premiums paid to unlicensed insurance companies.

The proposed amendment of the paint manufacturers, as outlined in a recent issue of Sanitary Engineer, would be inserted in place of the provision that the purchaser be furnished with written invoice which shall state separately the amount of tax to at least the extent of 2½ per cent. The suggested amendment of certain manufacturers provides that no absorption of any part of the tax be allowed, that the sale from manufacturer to wholesaler be exempted from taxation and that the sale from either manufacturer or wholesaler to retailer be subject to the full Sales Tax of 4½ per cent.

Predict Big Building Year In 1923

Much Residential Building Required to Keep Pace With Natural Increase in Population—Prices Appear to be Fairly Stable for Early Part of Next Year—Pipe Deliveries May be Slow

MANUFACTURERS discussing the business outlook for 1923 in plumbing and heating supplies give some information of value to the trade in planning for next year.

L. H. Ivey, Empire Brass Mfg. Co., Ltd., London, Ont., states that the past year has been a fairly good one for residential building.

"There has not been industrial building to any great extent, and we are looking forward to about the same conditions during the year 1923 as industrial building will not reach any large extent until there is a bigger increase in immigration into the country," says Mr. Ivey.

"Figures, however, show that the natural increase in residential building during the war years and after, was never maintained, so that we still think there is a great deal of residential building to be done in the country to take care of the natural increase.

"We feel that there is an exceptionally good field for business in the rural districts where the farmer is wakening up to the fact that he can have at a fairly moderate cost the conveniences of the city resident, and with a little concentrated work on the part of the manufacturer, the jobber and the sanitary engineer, this business could be made more extensive.

"In regard to prices. Indications are that the price of labor for the time being is at least stationary. The advance in the rate of wages made of their own free will by the steel companies in the United States, indicates that no further reductions are to take place so that, if anything, an advance in prices can be looked for during 1923 instead of a further reduction. We personally feel that generally business in 1923 will exceed that of 1922."

Much Building to be Done

C. A. Lusby, Amherst Foundry Co. Ltd., states:—

"We have found some improvement in business during the past few months and we think that the prospects for the coming year are better than they have been for some time during the past. There must certainly be a considerable volume of building business during 1923 which has a direct bearing on the line of business in which we are interested.

"In regard to the stability of prices, it is rather difficult to make predictions as a great many articles, especially in the line of metals, are showing a tendency to increase in price at the same time. We think, however, that there will not

be any very great fluctuation in prices during 1923."

J. O. Thorn, General Manager, The Metallic Roofing Co., of Canada Ltd., manufacturers of sheet metal building materials, states:—

"Prices of raw material and manufactured goods in our line are as low as it is possible to make them, under existing conditions. Owing to a variety of reasons raw material has been difficult to obtain, and in our opinion customers will be well advised to book now for their requirements during at least the first quarter of the new year."

Price Trend Stable

J. M. Gunn, Ass't. General Manager McClary Mfg. Co., London, states:—

"The basic raw materials of our industry consist of sheet iron, both black and galvanized, pig iron, copper, spelter, tin, and tin plates. It was expected that there would be a general decline in values during 1922, towards pre-war prices, but on the other hand there has been a general advance, though not a large one; and we have not advanced our manufactured goods to correspond with these increased values. It is quite possible that this will have to be done in the near future. The reason for this secondary inflation is the increased cost, occasioned by the scarcity of coal, and railway troubles, owing to the refusal of the miners and operators to take their share of the liquidation which is going on.

"During the year our trade was increased in volume considerably, but the value was not very much greater than the year before, owing to the lower

prices, and it was done at a narrowing margin of profit. It is hard to say how long the present conditions will prevail but there is not likely to be much change during the first quarter of the year. An advance is predicted in some lines of raw materials which will certainly affect our costs, but if an amicable settlement is made with the labor elements above referred to, this anticipated advance may be avoided."

Pipe Deliveries Slow

H. Rooke, Page-Hersey Tubes Ltd., Toronto, manufacturers of steel and wrought iron pipe, states:—

"In the tubular trade, the year just closing was marked by a very heavy demand for small sizes of black and galvanized pipe, due to what might be termed, "the building boom in Eastern Canada," principally in Ontario and Quebec. The opposite has been the situation in respect to larger sizes of pipe, 3 in. and up, due to the few buildings of large size, under construction, and because there was no development to any extent in the industries. Manufacturers of tubular products have been hampered very seriously, in fact, plants have been closed down, due to lack of raw material, caused by the coal strike and the railroad situation in the United States in addition to which they have also had a heavy demand for steel products, both home and abroad.

"Notwithstanding this, the price of tubular products has not changed materially, from the low point of 1921, the advance only being \$6.00 per ton, hence in this line, the experience of rapidly rising costs, has not affected work, as was the case two years ago.

"It is, of course, likely that the volume of business in Canada, will be reduced during the mid-winter and inventory periods, but, due to short supplies, it is not expected that mills will be able to accumulate stocks, to any extent, and the probability is that deliveries will be slow during the early part of 1923 and prices continue firm."

Stimulate Buying Market

W. R. Gibson, General Manager, Gurney Foundry Co. Ltd., Toronto, manufacturers of heating appliances, states:—

"If manufacturing costs are regarded as a basis of price for 1923, there should be a decided stiffening of price, although some softness may result in the early part of the year because many manufacturers lack the nerve to get the prices that their costs demand.

(Continued on page 20)

WHY A TINSMITH IS A MANUFACTURER FOR TAXATION PURPOSES

Tinsmiths have long wondered why they were classed as manufacturers, for taxation purposes, while blacksmiths, merchant tailors and others producing certain articles were classed as retailers.

The reason, as outlined in the resolutions being considered now, is that tinsmiths and confectioners produce something which can be sold in the ordinary retail way to practically anyone, whereas the product of a blacksmith or tailor is to special order and could not be sold in ordinary retail trade.



"Coming to Loggerheds Over Bizness Expanshun"

(With apologies to Ring W. Lardner)

By

MAJOR L. L. ANTHERS.

MANAGING DIRECTOR-ANTHERS FOUNDRY LTD.

Terraboone, Dec. 29

Dear Friend Al--

I HOPE you recd. that nektie I sent you for Xmas. I showed it to sum of the boys in the shop and they sed it was a reglar knockout. I sez to them nothins too good for my Old Side Kick Al and I aint goin to tell you how much I pade for it for I dont bleeve in lookin gift horses in the mouths—you know me Al.

Wen I showed it to Vilet she said it maid her dizzy to look at it the colors was so strikin. She said you could either ware it on the Seventeenth of March or the Twelfth of July and keep em all guessin without given afence. Thats a hole lot of praze comin from Vilet.

Ime goin to tell you how me and Bill the foreman my partner neerly came to loggerheds over a question of what he called "bizness expanshun." You know how it is in the big leagues Al. Wen the season is over you bust up till the next spring. Theres a lot of that "Old lang sine" stuff and the usual fairwell greetings such as "sorry to meat, happy to part," and etc. But when you get into reel bizness you got to keep movin the hole year round or your not libel to finnish the season. Haven played baseball so long I wasnt wize to these conditions. An when things begin to slack off I was enclined to hit the eezy chare. But not Bill. He had somethin up his sleeve and when he sprang it that was when we had the argument.

"Ever here of skeptic tanx?" he sez to me one day as I set in the offis goin over the battin averages of them fellers what calls themselves major league hitters when they never half bean up before a reel live pitcher like what we usta half when baseball was in its zeneith.

"Skeptic Tanx," sez I, thinkin he was referrin to some brand of booze-fighter. "No whats they?"

"Well there used for ruriel sewage dispozle," he explnd. "Where a town aint got a trunk sewer

and sewage dispozle system you put in individual skeptic tanx and a dispozle field and nature does the rest."

"What kinda squerl whiskey you been drinkin?" I asts him. "Were jew get this ruriel dispozle skeptic, field tanx bizness? Come down to earth and tell us what its all about."

"Well," sez he, "its like this. Theirs a tank concisting of 2 chambers. The discharge from the house drain enters the first chamber and undergoes a process of dissalushun threw the action of Annie Robic Bakteeria, then it—"

"Back up—back up—wot the h—" (Then I seen Vilet lookin my way and changed my questn.). "Annie who?" sez I.

"Annie Robic," sez he.

"Well wot doz Annie do?" I asks thinkin he was goin nuts.

"If you lissen Ile tell you," he sez irratated like. "The solids is broken down by Annie Robic Bakteria—"

"I thought you said her name was Annie Robic—now you say its Bakteria—was she married twice."

"You dont get me" he sez.

"That's the best little guess you ever maid" I came back at him.

"Well lissen till Ime threw," he sez, "and then you can ask questns."

So I set back in my chair and lissened wundring what it was all about.

"After the solids is broken up they overflow into the doseing chaimber—"

"Is a doseing chaimber a sick-room?" I asks in-nicent like.

"See hear," he sez, beginning to get soar, "Jew wanta lissen to what I gotta say or jew think you no enuff?"

"All rite fire away," I sez. When Bill begins to get sourcastic its time to close up. "Sorry I interrupted—I'll lissen to the bitter end."

"You maid me lose the thread," he growled.

"Will a peace of string do" I asts, but he looks so mad that I closed my trap and kep it closed.

"Where was I," he asts.

"In the first chamber with Annie Robic," I informs him.

"Oh, yes," he sez. "Well after the solids is broken up by Annie Robic Bakteria, they overflow into the doseing chamber. When the affluvia gets to a certain hite—"

"The what?" I sez, fergettin myself.

"The affluvia" he skowles, "the liquid what overflows from the first chaimber. When it gets to a sertain hite it is discharged into the dispozle field which is a lot of tile of about 18" under the ground."

"Who discharges it," I ast him.

"Why A. Sifen discharges it when it gets to a certain hite."

"How does A. Sifen no when its high enuff?"

Bill looked so discusted like he wood of et me.

"A. Sifen discharges the affluvia automatickly."

"Oh I see" I sez, not seen at all. "A. Sifen has a automatick and discharges affluvia insted of bullets."

Bill looked like he wanted to kill me. "Your hopeless," he sez.

"Oh Ime not so cuckoo as you think," I retallyates with fervor. "Wot makes A. Sifen discharge automatik affluvia, thats what I want to know," I sez, tryin to look wize.

"Atmusfeerik Preshar," he says.

"But wot regelates Atmusfeerick Preshar?" I came back at him.

"Nothin does," he balled. "Atmusfeerik Preshar is constant."

"Whoz Atmosfeerik Preshar constant to— Annie Robic?"

I thot Bill ud choak, he looked so mad.

"When your threw astin damphool questns," he sez, "Ile perseed. I want to show you how we kin get knew bizness but you wont take it seryous."

"Now look hear Bill" I sez tryin to molufy him.

"Ime just as kean as you to boost bizness, but when you interdooce me to Annie Robic in the 1st chaimber an then Atmosfeerik Preshar shoots out automatick affluvia out of the 2nd chaimber I really thinks you ought to half youre hed red."

"Oh thats youre apinion is it," he sez with a snear. "Well youve gotta lot to lern."

"Shoot away old Bean," I sez, "Ime injoin it if you are. What happens after the affluvia shoots out into the automatik dispozle field."

"It filters threw the open joints of the tile in the dispozle field."

"Then what happens?"

"It is purified by the son and heir and A. Robic Bakteria."

"You mean Annie Robick Bakteria," I sez thinkin I was puttin one over him.

"No I dont" he



"Skeptik Tanx," says I, thinking he was referring to some brand of booze fighter.

shouts.

"Didnt you say A. Robic Bakteria," I asts.

"Yes I did," he returns.

"Well dozent A. stand for Annie," I asts tryin to look hurt.

"Oh h—I," he sez, "I dont sea how I stand for you," and with that he gets up and busts outa the shop slamming the door after him.

"Well some peepols got me beet," I coments, as he hikes it akross the streat as if he was in a hurry to go somewhear.

"Oh is that so," I hears a ladys voice behind me, "When did you begin to tumble to yerself?"

It was Vilet and I begins right off to feal uneezy.

(Continued on page 36)

Sewage Disposal for a Rural School

First of a Series of Plans and Specifications of Sewage Disposal Systems That Have Been Prepared, Laid Out and Adopted by Authorities—Sewage Disposal in Rural School With 400 Pupils

Written for Sanitary Engineer by EDWIN NEWSOME, Consulting Sanitary and Heating Engineer

IT IS estimated by some of the greatest statisticians that rural, as well as city school problems are becoming more important to the sanitary engineer, because such institutions as schools require to be fitted up with modern sanitary conveniences.

Various countries have put laws into effect that require all children to be given a public school education until they reach the age of 16 years. This law it is said, is responsible for a lot of schools having to either be enlarged or new ones erected, and while no doubt such a conditions adds in more ways than one to the financial burden of the

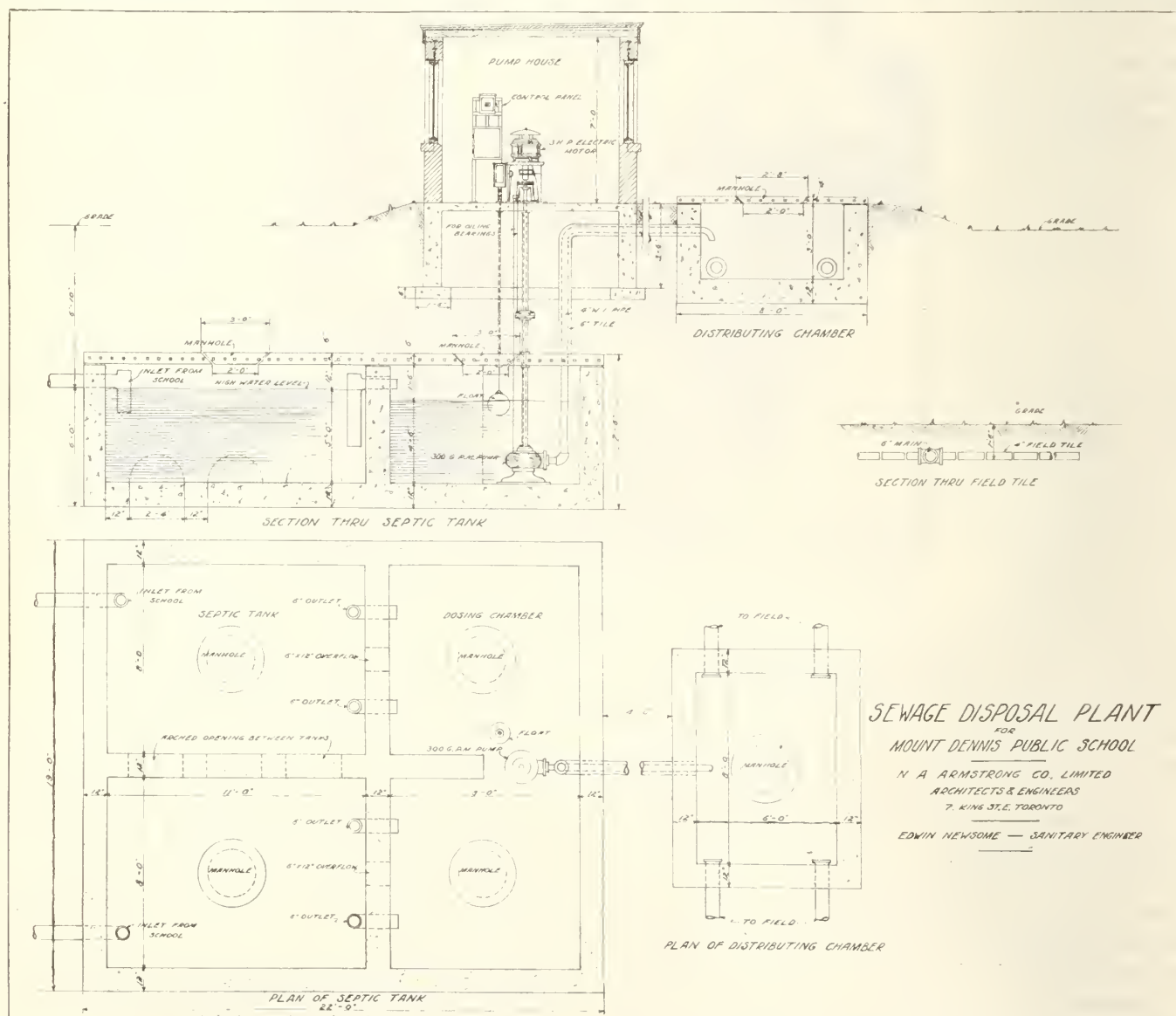
public school boards in incorporated towns and cities where sewerage systems and public sewers are available, the problems of the rural school boards and trustees are still more serious, because special sewage disposal systems have to be laid out and designed, and almost every school requires a system best suited for prevailing conditions, as well as to meet the financial situation of each locality.

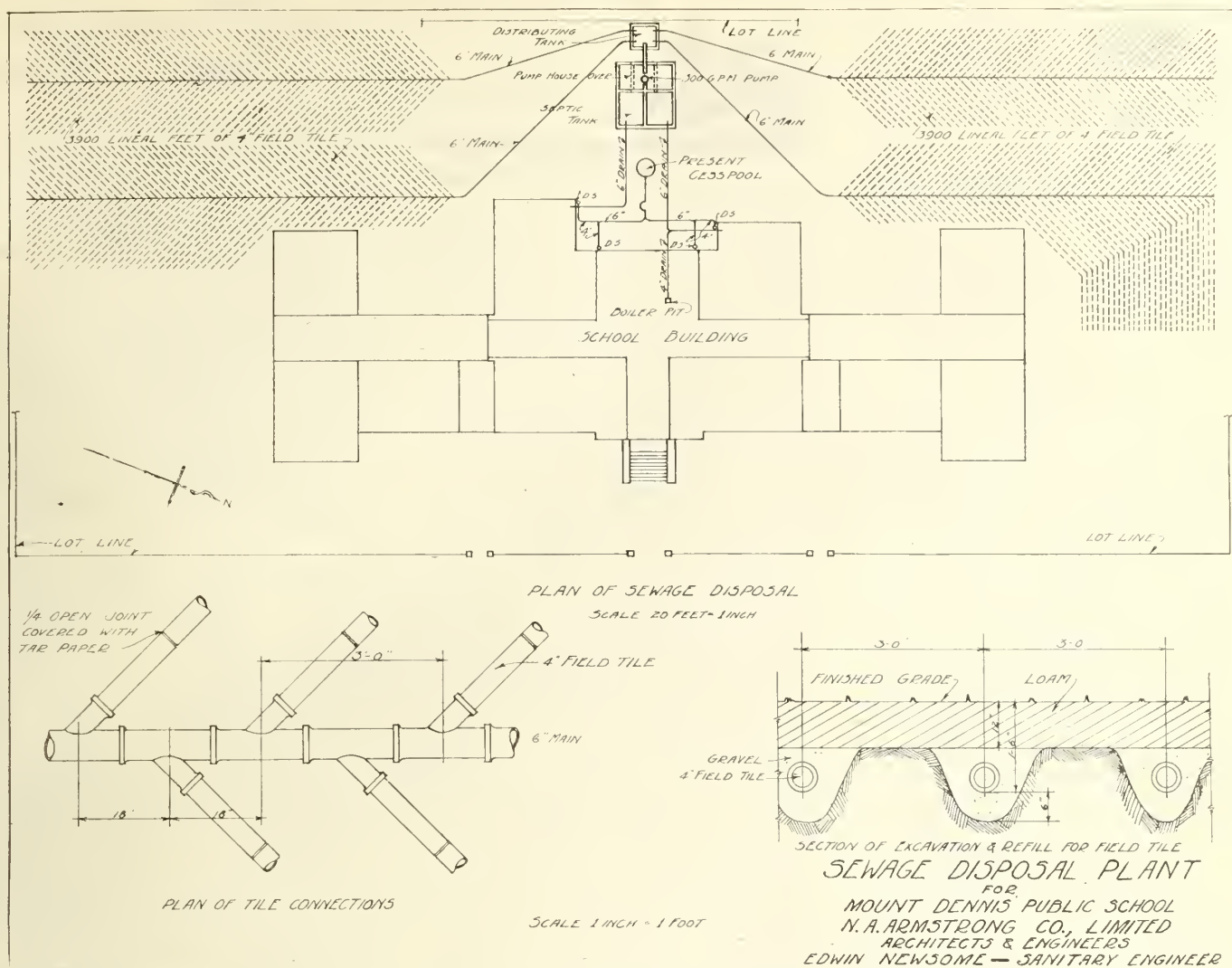
Architects and sanitary engineers are being called upon to cope with these problems, and, realizing the position of many, who not having had very much experience along these lines, because of

the fact that few such undertakings were required in years gone by, the Sanitary Engineer is going to publish plans and specifications of sewage disposal systems that have been prepared, laid out and adopted by men who have given this line of work a great deal of study and who also have laid out and designed many successful systems.

The first sewage disposal system to be described in this series of articles is that designed for the school now under construction at Mount Dennis, Ontario, a suburb of Toronto.

When the school is completed it will provide for the attendance of 400 pupils





at least. Modern plumbing and sanitary fixtures will be installed and the basement will be drained. There will be separate boys' and girls' lavatories and small ones for teachers.

The septic tank proper, which is a double one, will partially treat 4,000 gallons of sewage per day, and nearly 8,000 lineal feet of four-inch field tile pipe will be laid underground for the absorption bed. N. A. Armstrong Co., Ltd., King St. East, Toronto, are the architects and engineers. The whole system is fairly well described in the accompanying illustrations, which are actual reproductions of the working drawings.

Tanks are Built Down

The tanks are built down in the ground so that wash basins, urinals and w. c.'s situated in the basement can be all connected in such a way as to discharge the soil and waste into the tanks. Ample ventilation is also provided, as the drawings and details show.

The sewage flows direct into the cultivating compartments and, when the anaerobic bacteria has broken down the solids, the effluent overflows into the dosing chamber.

These latter chambers are emptied by a vertical electric driven sewage lift

pump. 3 h. p. discharging and lifting the sewage at the rate of 300 gallons per minute into a concrete distributing tank, from which the effluent flows into the thousands of lineal feet of field tile.

This rate of discharge has been provided so as to insure an equal distribution of sewage into the whole of the system of laterals as shown.

Operation of Sewage Pump

The sewage pump is operated by an automatic switch, connected to a vertical rod at the lower end of which is fitted a large copper float; when the effluent in the dosing chamber has reached a certain height, the float rises and throws in the electric switch, starting the motor. The motor is also a vertical type A. C. directly connected to a vertical shaft operating the centrifugal pump.

The size of the septic tank is determined by the number of pupils and teachers attending the school and the amount of water used in the operating of the whole school, viz.: Water used in the w. c.'s. (the amount per flush predetermined). The urinals are fitted with automatic flushing tanks set to discharge a given amount at pre-arranged intervals. A certain amount of water is provided for cleaning the school, for

drinking purposes as well as for the wash basins.

Not one item has been overlooked and every care has been exercised that will insure as perfect a disposal system as possible.

T. B. Smythe, sanitary and heating contractor, Toronto, has the job of installing this system as well as fitting the school up with all the sanitary fixtures, and, if previous work done by Mr. Smythe and his staff is to be taken as a basis upon which to judge, this job when completed, the writer believes that the school board will be given excellent work throughout.

How Sizes are Figured

When a sewage disposal system is being designed for any kind of building, there must be certain conditions given very careful attention. For example, the kind of ground, the area available, the number of pupils (if a school), the water supply in all cases, the kind of fixtures to be used, how the fixtures are to be flushed, or whether some of these are flushed periodically or continuously.

Suppose that the urinals are to be furnished with running water, then the quantity passing through the valves or nozzles will have to be predetermined or if these fixtures are to be flushed at

intervals, the number of intervals per day and the quantity per flush.

The w. c.'s will have to be flushed either by low down tank valves and ball-cocks or by automatic flushing valves and the quantity of water to be used must be predetermined before the size of septic tank can be decided upon. Then after all these details have been determined, the work of arriving at sizes can be gone on with, as well as an allowance made for cleaning the school, and the probable quantity used at the wash basins.

Type or Source of Water Supply Available

When water is procured from a private source, such as well, lake, river or stream, and the water is pumped into pneumatic pressure tanks, water is used more sparingly than is the case where a public water supply is available. In the case of this school, water is procured from the city of Toronto water works and ample water allowance is therefore provided. Each w. c. is to be furnished with flush valves set to discharge (3½) three and one half gallons per operation. The urinals will be fitted with automatic flushing tanks; two gallons of water per pupil is furnished for the purpose of school cleaning. The balance of ten gallons per pupil per day is used for urinals and wash basins.

Location of Septic Tank

When plumbing fixtures are installed on the ground floor and basements do not require to be washed and drained into the septic tanks such tanks can be built close to the surface of the ground. But in this case, plumbing fixtures are placed in the basement and the soil and waste must therefore flow by gravity into the septic tanks, which are built at some depth down as shown in the illustrations herewith. The effluent flowing from the cultivating, or septic tanks into the dosing chamber must therefore be raised by the vertical pump because it is necessary to discharge such effluent into open field tile pipe laid about (18) eighteen inches below the surface of the ground, a position where most of the friendly germs are always to be found.

The pump, discharging the sewage at the rate of 300 gallons per hour, will only operate once in twenty-four hours, giving ample time to allow the effective breaking down of the solids in the cultivating chamber, and the further settling of the effluent. The dosing chamber will be emptied in about thirteen or fourteen minutes from the time the motor starts. This high rate is necessary so as to make sure that all the field tile pipes will be filled with sewage and ample time given to allow the sewage to be absorbed by the ground.



"Consult your Plumber more and you'll consult your doctor less."

Foregoing has been suggested as a good slogan for plumbers to adopt in their advertising and showroom displays.

ELECTRICITY KEEPS SWIMMING POOL WATER SANITARY

F. E. Hartman, a chemist, has written a booklet on "The Purification of Water for Swimming Pools," in which he says that the methods commonly employed in the art of water purification are filtration, chlorination, actinic rays and ozonation. The use of actinic rays, or as it is more generally known, ultra-violet light has been practiced since 1906 when De Mare employed it to purify the water at Marseilles. It was found that ultra-violet rays could be used for the destruction of micro-organisms in water.

For the Madison Square pool, New York, water is taken from the street mains, passed through a filter bed of broken stone, sand and gravel in huge steel cylinders; from the cylinders the water goes through the ultra-violet ray sterilizer; from the sterilizer into the pool through 30 inlets around the edge of the tank. The used water flows through outlets at the bottom of the diving pit to a point where it joins fresh water flowing in from the city mains, then all of it goes to the filters and on through the sterilizers. This continual circulation of the water is carried on by two motor-driven pumps.

PREDICTS BIG BUILDING YEAR

(Continued from page 15)

"Iron, coal, coke, steel, copper, and the many other necessary supplies will be affected by the increasing volume of business and their cost will influence upward the price of manufactured goods.

"Labor is not likely to be any lower in cost as even now the fact appears that demands are already being formulated for higher wages, and if efficiency drops, as it usually does when unemployment diminishes, then this item of cost will also increase.

"My experience would indicate that the retail business man's policy should be to use every endeavor to stimulate the buying market in his local district and then should buy conservatively and steadily to fit his requirements. Then if the policy of collecting promptly and closely, and paying his own accounts punctually is followed, he is almost certain to have a very satisfactory result for the year 1923."

Sanitary Conditions in Artisans' Homes

A comprehensive report has been prepared upon artisans' homes in the City of Hamilton, as the result of months of work by the inspectors of the local health department. Instructions for the making of the survey of homes were issued by Dr. James Roberts, M. H. A., some time ago.

The results of the thousands of inspections made are revealed in the exhaustive tables as to each district which are included in the report. A summary is also included, which is as follows:

Number of homes occupied by one family	4,148
Number of homes occupied by two families	326
Number of dwellings over stores, tenements	192

Total of dwellings inspected	4,536
Defective sanitary fittings	1,504
Defective eavestroughs, plaster, roofs	1,060
Defective flooring	80
Dampness and structural defects	117
Dirty homes and cellars	504
Dark rooms	133
Dry earth closets or privy vaults	843

"It will be noted," the report states, "that out of the 4,666 premises inspected 1,840 or 40 per cent. were owned by the occupants of the same. The 4,666 includes tenement houses, and rooms over stores. If these be excluded, it will be found that at least 50 per cent. of the artisans in this city are the owners of their homes."

Of the homes inspected, 3,005 were reported in good sanitary condition, 1,237 as fair, and 424 as bad. The lack of sanitary convenience indicated in the tables with a large number of homes, was owing to the fact that many houses in Homeside district were visited, and the city services have not yet been completely installed.

In homes where conditions were bad, notices have been served that improvements must be made. After the completion of these improvements, the homes will be eligible for promotion to the "fair" or "good" class.

The report deals with occupied dwellings only. Nevertheless, it is stated that the number of vacant houses suitable as artisans' dwellings is remarkably small. In the extreme east of the city, several houses had been erected consisting of a single room.

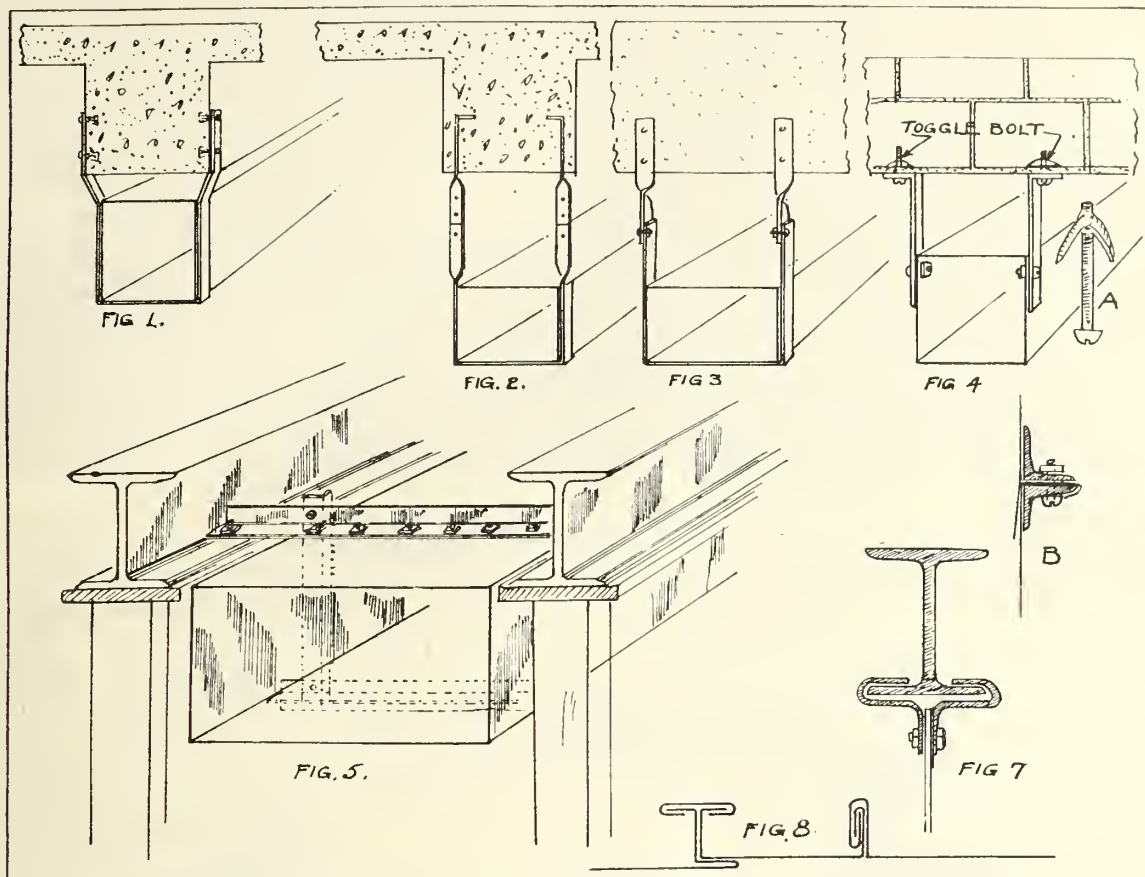
"I have no hesitation in stating that there is a distinct evidence of the necessity of a large number of small habitations to be erected in the city," Mr. Thornley states toward the close of the report.

The document is signed by W. M. Thornley, chief sanitary inspector.

Some Patterns for Hanging Ducts

Written for Sanitary Engineer by O. W. Kothe, Principal, St. Louis Technical Institute, St. Louis, Missouri.

(Continued from last issue)



Patterns For Hanging Ducts.

IN FIGURE 1 we show how small ducts may be hung to a concrete beam by clamping a band around the duct and attaching to the beam by means of expansion bolts. This is done at intervals of every 4 feet or so, at least there are 2 hangers to an 8-foot length. Then at figure 2 we show how hangers are embedded in the concrete before setting. Then by means of additional straps, bent or twisted to suit conditions, several holes can be punched along which enables raising or lowering the duct to suit. Other times they can be arranged as in figure 3, where they are expansion-bolted direct to the beam. Still at other times long rods are threaded and run directly through the floors to support wide ducts or several runs of ducts. These angles are anchored to the floor with extra long threads on the bottom, are attached to angle irons laid underneath the ducts. Then these rods can be screwed up, thereby raising or lowering the work as required to make it perfectly level and straight.

In modern buildings where tile construction is used in the floors, these tiles are generally wedged, shaped and concreted in place. For such floors, and on small ducts as in figure 4, toggle bolts as at A are used. These are very serviceable for such work as they can be inserted in drilled holes, after which the wings will expand and enable tightening up. But for heavy ducts it is better to run a long bolt through the floor and anchor with a plate at the top, since that will make it safer and there is no liability of the tile pulling through as would be the case with a toggle bolt.

Sometimes with extra wide ducts, a construction feature as in figure 5 is used. An angle is bolted to the top of duct at intervals, and hung over the flange of the I-beam, where considerable vibration would be met with, a bolt would be set. To prevent the bottom of duct from sagging or buckling, an angle is also stretched across and either angle iron sides or rods are provided for supports. Vertical ducts on stacks are often

joined together as at B and hooks for I-beams may be made as at figure 7. Many of these details must of course be adjusted to what a workman has to work with. At times it is convenient to make joints as in figure 8 at certain places but even at that, certain slip joints are often designed to overcome this cumbersome joint.

A BUSINESS EVOLUTION

Forty publishers of morning newspapers met in Chicago a couple of weeks ago and formed an association to promote the morning newspapers' interests in competition with the evening newspaper as an advertising medium. The chief method by which they say they intend to accomplish this is through announcements in the business newspapers of the United States—that is papers of the type of Sanitary Engineer.

This is an interesting evolution—the recognition of the place and power of the specialized newspaper.

Asks That Sanitary Engineer Advocate Compulsory Passing on of Sales Tax

IN a recent communication received by Sanitary Engineer, J. E. Casson, plumber, of Victoria, B. C., states, "I have subscribed for and read Sanitary Engineer for about twelve years and always found it useful. The yearly subscription is well spent money."

He goes on to state re the Sales Tax: "Why should the retailer have to pay for it all? A lot of attention is given to manufacturers' and wholesalers' difficulties but little about the retailer who has to pay it and who can least afford to do so. He is the one who has to face unrestricted competition to sell his goods and simply has to absorb this tax out of his anticipated (?) profits. Why

should not he charge the Sales Tax direct to his customer as a separate item on this bill? Why should you not advocate that the law be changed so as to make it compulsory for him to do so."

In explanation to Mr. Casson, Sanitary Engineer has worked diligently in the interests of the retailer in respect to Sales Tax. The recommendation has been made that the Sales Tax be passed along to the consumer as the government has intended it to be, and the average retailer finds his cost of doing business sufficiently high to-day without absorbing any part of this tax. This is the practice which should be followed. It is infinitely better to pass this tax

along as part of the price quoted than to show it separately on the invoice to the customer. The latter plan would bring back the old objection to the Luxury Tax. If through competition in certain districts the retailer is unable to collect this tax the situation is similar to that of local price cutting and is beyond the assistance of any outside organization. The price cutting situation generally rights itself in short order.

INCORPORATIONS

Hickey & Aubut Ltd., head office Montreal, capital \$50,000 to manufacture furnaces, stoves, ranges, piping, sanitary apparatus, etc.

Perfection Radiators Ltd., head office Montreal, capital \$750,000 to manufacture and deal in radiators.

The collage consists of several overlapping advertisements:

- Erskine, Smith & Co.**: "Our Hobby is Good Work Only." 21 Nicholas Street, Bideford 4771.
- McKelvey & Birch, Limited**: Gas Water Heaters and Gas Stoves. 1111 St. John St., Kingston, Ont.
- W. H. Thorne Co., Ltd.**: Bathroom Fixtures. Beautiful and Sanitary. 1111 St. John St., Kingston, Ont.
- Brousseau & Frere**: Modern Plumbing. 387 St. Paul St., P.O. Box 100.
- Taylor Bros.**: A Shower For Health. 381 Colborne St., Brantford, Ont.
- Hamilton & Stott**: When Planning Your Home. 400 Talbot Street, Toronto.
- R. Chestnut & Sons, Ltd.**: TIGHT JOINTS. 1111 St. John St., Kingston, Ont.
- E. Lawrenson**: PLUMBING! 387 Prince St., Kingston, Ont.

Some advertising which may offer some helpful suggestions to others in the trade is shown above. Erskine, Smith & Co., Ottawa, advertise "Our Hobby is Good Work Only," which points out that the firm concentrates on plumbing and heating work, using best materials and honest workmanship. It states "this is time to discard that zinc bath tub and let us install sanitary enameled ware." McKelvey & Birch, Ltd., Kingston, Ont., advertise gas water heaters and stoves. The ad. by W. H. Thorne Co., Ltd., St. John, N.B., is devoted to bathroom fixtures and reads "On the fixtures depends the attractiveness, convenience and completeness in the sanitary arrangement of the modern bathroom. Our complete line of fixtures is fully abreast of every requirement." Brousseau & Frere, Quebec City, advertise "For the plumbing, heating and radiation of your home or improvements to existing systems it will pay you to place your work with an experienced and resourceful firm." Under the heading, "A Shower for Health," Taylor Bros., Brantford, Ont., say, "Doctors say that the morning shower bath contributes in no small measure to one's health and immunity from colds and disease. Why not one of our showers in your bathroom?" The ad. by Hamilton & Stott, St. Thomas, Ont., points out the necessity of considering health first in planning sanitary installations. The ad. by R. Chestnut & Sons, Ltd., Fredericton, N.B., emphasizes the necessity of tight joints, showing that careful threading and fitting are features of the firm's pipe work which are distinct specialties. E. Lawrenson, Kingston, Ont., advertises the greater enjoyment which comes from home life where the best fixtures are in use.



This view of a Toronto plumber's showroom indicates the attractive appearance which can be secured by devoting a little attention to the arrangement and furnishing of the display. Enameled ware in an extensive array is shown, with medicine cabinets, toilets, mirrors, etc., down one side and laundry tubs and fixtures along the other. The office is at the rear with special facilities for discussing business with prospects and making estimates.

TELEPHONE AT BATHTUB, A NEW IDEA IN HOTELS

For years hotels have been competing with one another to provide the ultimate in a guest's comfort. But it is only recently that anyone had enough imagination to think of anything so sensible as a telephone extension in the bathroom. What is more annoying than to have to get out of the bathtub all dripping and stand by a wall telephone? One hotel has two telephones in each room, one by the bathtub and the other on a stand by the head of the bed. Excellent places for phones, but think how long it took for hotel men, even hotel men with the best of intentions, to quit putting them on the wall where a guest can't even sit down. For that matter, it is not many years since phones in private homes were placed where one could talk and be comfortable all at once.

SANDWICH COUNCIL PLANS BIG SEWER TO SERVE SOUTHEASTERN SECTION

Windsor, Ont.—The tender for the laying of a sewer in the southeastern portion of the town of Sandwich was awarded to the firm of Merlo, Merlo & Ray, at a special meeting of the Sandwich council. The by-law authorizing the work was also passed, and the sewer will be started at once. The successful bid was \$143 871, and the new sewer will

supply Askin Boulevard, Partington Avenue, Craigh, Randolph streets and Rankin Avenue, and several other streets in the southeastern district.

The plans of the new sewer provide

for drainage for the section of the town bordered by the town limits on the east and on the south, and as far west as the Huron Line. This work will only be completed as required.

By-law Which Allows Installment Payment of Sanitary Conveniences in Peterboro

SANITARY ENGINEER has secured a copy of By-law No. 2,425 of the City of Peterborough, concerning the authorization of the Local Board of Health to install sanitary conveniences. This by-law reads as follows:

PASSED THE 2nd DAY OF NOVEMBER, 1922.

The Municipal Council of the Corporation of the City of Peterborough enacts as follows:

1. Where the Local Board of Health of the City of Peterborough recommends to the Council that sanitary conveniences should be installed in any building, and is of the opinion that the owner of the premises is unable to pay the expense of the same at once, and where the said Board directs that the cost, including interest at six per centum on the deferred payments, be paid by the owner in equal successive annual payments extending over a period not exceeding five years and that such annual payment be added by the Clerk of the City of Peterborough to the collector's roll and collected in like manner as municipal taxes, the Council may, by resolution, install suitable sanitary conveniences at the expense of the owner as herein set forth and according to the Public Health Act, Chapter 218, R.S.O., 1914, and all amendments thereto and authorize the Treasurer of the City of Peterborough to pay the cost thereof on the order of the said Board.

(Sgd.) W. H. TAYLOR, Mayor.

(Sgd.) S. R. ARMSTRONG, Clerk.

I certify that the foregoing is a true copy of By-law No. 2,425 of the Corporation of the City of Peterborough passed by the Council thereof at a meeting held November 2nd, 1922.

(Sgd.) S. R. ARMSTRONG, City Clerk.

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No. 1

Pure Water Lowers Death Rate

A STATISTICAL record of water purification issued by Norman J. Howard, bacteriologist in charge of the Toronto filtration plant laboratory, is remarkable in three respects: 1. Its revelation of the increasing vileness of the raw water supply. 2. Its testimony as to the efficiency of filtration plus chlorination. 3. Its proof of the consistently excellent tap water which Toronto enjoys despite the yearly greater contamination of Lake Ontario.

In raw water for the slow sand filters, only 18 per cent. of the cubic centimeter samples showed the presence of B. Coli, the danger signal, in 1912. This percentage grew steadily until it reached 40 per cent. in 1918, 53 in 1919, 60 in 1920 and over 72 in 1921. The average number of bacteria per cubic centimeter developing in tests of the raw water in 1914 was 103.53. In 1918 it was 356.30; in 1919, 715.11; 1920, 724.51; 1921, 1,036.49.

But despite the growing impurity of the Lake Ontario supply, the tap water has been uniformly good. The filters have reduced the bacteria count by the following percentages:

	Slow Sand Filters	Drifting Filters
1914	96.9	—
1915	99.5	—
1916	98.9	—
1917	98.7	—
1918	99.1	85.4
1919	99.7	95.3
1920	99.6	93.9
1921	99.5	95.2

These figures are a great tribute to the slow sand filters installed many years ago by Mr. Allen Hazen, of New York, and violently criticised in certain circles as inefficient before they had been given a chance to prove themselves. It was even said that they were falling to pieces as soon as built. But they are still on the job and removing over 99 per cent. of the bacteria.

Chlorine removes the remainder. Mr. Howard says: "Treated water examined in 100 c. c. shows almost complete sterilization in the winter months, while in the summer occasional 48-hour fermenters occur, which persistently fail to confirm out."

The result of pure water (plus pasteurization of milk which has been enforced since 1915) is seen in the reduction of the

typhoid death rate. It averaged 18 per 100,000 in the years 1910-1914 inclusive. It has averaged only a little more than 3 per 100,000 from that time onward. And this despite an abnormal annual increase in the pollution of the raw water, a pollution which Mr. Howard thinks "will go on increasing as long as Lake Ontario is regarded as the normal receptacle for the discharge of putrescible matter."

* * * *

Justice to Plumbers

IT IS comforting to sanitary engineers to note that some of the more thoughtful individuals in business and social life are coming to a higher appreciation of the importance of this industry. In a recent issue of Commerce and Finance, the following laudatory remarks are given:

"A Boston journal speaks eloquently and, it must be said, persuasively in defence of the plumber. It points out that in plumbing, as in many lines of endeavor to-day really skilled craftsmen are hard to obtain, and that it is too much to expect that for every small household job the master plumber should always be available.

"Were he to undertake personally every piece of work ordered the business could not be carried on. Plumbers as a rule are reasonably prompt; the call for a household job is usually a hurry call and it is of importance that it be done quickly. One should not expect the head plumber for every leaky faucet or frozen pipe.

"As for the profits in plumbing, it is pointed out that there is many a small plumbing contractor who clears but \$50, including pay for his own time, on the work that goes into a six or eight-room house. The business suffers from periods of acute depression, or idleness, and of course its volume falls off when such protracted times of let-up in domestic building occur as that we have witnessed in recent years.

"Especially in regard to the inherent and justly famous proclivity of the plumber to go back for something does the editor urge fairness in criticism. One has but to glance at a plumbing supplies catalogue to get an idea of the bewildering extent and variety of the things needed to make a house really and completely modernly plumbed. No workman can be expected to carry a hardware store on his back every time he comes to fix one's sink or restore the normal current of affairs to one's bathroom. It is asking too much to look for a 1,000 page catalogue incarnate in a pair of overalls and a kit.

"Therefore we again extend to Mr. Gawthrop and the great plumbing industry our acknowledgment of the high utility, public spirit and ethical standards of their craft. To our earnest readers we pass along this plea for fair treatment. Boston has presumably more busted water pipes and plumbing troubles than we, for the atmosphere and the people are both colder there.

"We look forward to retiring some day to our farm. There are many things indispensable to preserve the essential note of simplicity, but of all these there is one vital, essential and pre-eminent. A farm to retire to may be without ducks, horses, cows, ice-house, shady lane, corn-crib, silo, tester, Department of Agriculture bulletins or an orchard, but there is one thing it must have and that is Modern Plumbing.

"This is true not only of a farm, but of a house, apartment, cottage, flat, bungalow, pyramid, community centre and any and every kind of place, dwelling, residence, abode or habitation where one would lead a life happy and civilized."

* * * *

Our ancestors only bathed when they thought it unavoidable, but advertising has sold us a daily habit. Is it now to sell us on substitutes therefor?

Profitable Field for Plumbers' Efforts In Connection With Industrial Hygiene

Toronto Plumbing Inspectors Find Unsanitary Conditions Affecting Efficiency of Workers in Many Industrial Plants—Unused Closets With Traps Dried Up Are Emitting Sewer Air—Plumber Should Discourage Use of Handymen Meddling With Plumbing Work

By J. W. TROTTER, Inspector of Division of Housing and Industrial Hygiene, Toronto

I HAVE been honored with the request to give some information on what has been done in connection with the Division of Industrial Hygiene in Toronto.

In 1914 this division was organized in connection with the Division of Housing and in 1918 I was transferred from the Division of Plumbing and Drainage to the Division of Housing and Industrial Hygiene. At the present time there are two plumbing inspectors, Mr. Norris and myself, investigating conditions in the different industries, of which there are over 2,000 in the City of Toronto.

An inspector, in addition to plumbing and drainage work, has to take into consideration all conditions in the several industries which are likely to affect the health of the workers, such as gases, chemicals, trade dusts, lighting, ventilation, temperature, air space, overcrowding, expectoration, etc., and unless an inspector knows something of these different conditions, he is at a disadvantage. It requires considerable study to make one's self efficient in questions such as these.

I wish, however, to confine my remarks to general plumbing work in connection with the work of our division.

Plumbing Has Become Faulty

In dealing with the question of defective plumbing and drainage, I wish it to be understood that in our division we deal principally with plumbing which has been installed at one time in proper manner, but through the work of some handy man, probably an engineer or caretaker, the work has been made faulty, and in many cases positively dangerous to health, as you will readily perceive. As to work in factories that are closed up between the hours of starting and the hours of stopping work, breathing the foul odors from the unclean bodies of workers, the escape of gases in soil and vent pipe and other trade smells to say the least, it cannot be healthy.

The vitality of the worker is lowered by these conditions to the point where he or she is liable to contract any or all of the diseases which attack a weakened or run down constitution. This is why Toronto is endeavoring to try and have the plumbing work, with its waste and

vent pipes, kept in proper repair as well as to see that proper light, fresh air and fresh water is given to those whose lot it is to work in such places. While I am particularizing some of the bad cases found I don't want it to be understood that all our factories are unsatisfactory, for let me tell you we have in Toronto some very fine employers who try and do succeed in having every comfort and convenience, and are constantly trying to make the lot of the workers as pleasant as possible consistent with their work. We have some factories with specially fitted wash rooms, with lots of hot and cold water, and lunch rooms, everything in their surroundings clean, and they not only do that but they supply hot tea and coffee with milk and sugar at cost, and sometimes less than cost to the employees, rooms warm and comfortable so that the employees may enjoy their lunch away from bench and machines. Those are the ideal ones; the ones I

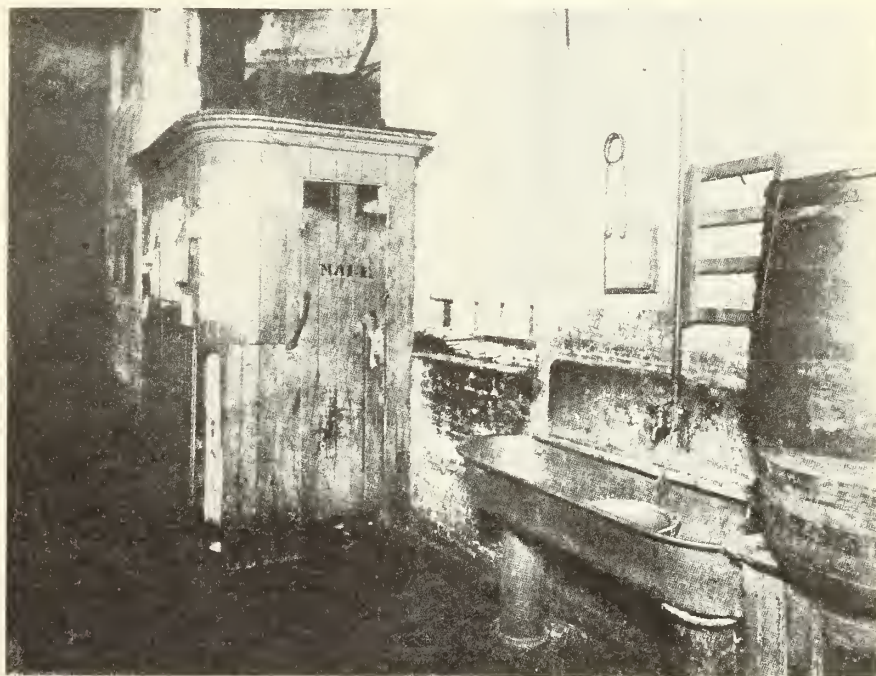
speak of are the ones we have trouble in getting the work made right.

Plumbing Done by Inexperienced Men

Every employer should be discouraged in allowing handy men to do plumbing work. These men instal sinks, basins, etc., using all manner of material as waste pipes. They undoubtedly get rid of the waste water but they take no precaution against the syphoning of traps, thus admitting sewer air into the building.

In one instance a factory was found where one of these men had installed several sinks. He had constructed traps of urinals with black iron and fittings, and run the waste pipes to soil pipe stacks or rain water leaders, whichever happened to be the most convenient. However, this fellow showed a little intelligence in this way, he had extended a half inch pipe from the crown of his

(Continued on page 36)



It is in connection with such conditions as that illustrated here that the chief advantage of work along the lines of industrial hygiene can be demonstrated. The plumber has a broad field opened to him by conducting educational activities among the industries located near him, along the lines suggested in this article.

News Notes From Coast to Coast

Doings in the Plumbing and Heating Industry

NEW FIRM

Port Arthur, Ont.—Hugh McCrae has commenced a plumbing business here.

OBITUARY

Winnipeg.—John Murray, contractor, who constructed Winnipeg's first system of waterworks in 1881, died last night, aged 82.

Charles A. Sargent, Western manager for Darling Bros., Ltd., Montreal, died in Chicago while on a business trip. At the age of 14 Mr. Sargent commenced with the above firm, and remained with them until time of death. He was 44 years of age, and for the past twenty years resided in Winnipeg. Apart from being well known in business circles he was also prominently identified in sports.

TORONTO PLUMBERS ELECT OFFICERS

At the annual election meeting of the Toronto Brotherhood of Steamfitters and Plumbers held in the Labor Temple, the officers of the present year were re-elected, as follows: President, George Holtby, Financial Secretary, Storey Gordon; Business agent, Stewart Richardson; Recording Secretary, Alexander McBain.

SEAFORTH PLUMBER CELEBRATES GOLDEN WEDDING

Seaforth, Ont.—Mr. and Mrs. Sidney N. Jacobs celebrated their golden wedding anniversary here, and were the recipients of numerous gifts. Their home was filled all day long by friends. They were married in Seaforth on Christmas Day, 1872, by the late Rev. C. E. Lavell, and have lived here ever since. Both are in splendid health and quite active. Mr. Jacobs is a tinsmith and plumber, and although 78 still works at his trade.

CANADA PIPE AND STEEL CO. SOLD TO CRANE LTD.

Canada Pipe & Steel Co. Ltd., (Cluff Bros.) Toronto, have decided to discontinue their plumbing supply business, which they have operated for the last fifteen years at 85 Church Street, Toronto, and have sold the same to Crane Limited, to take effect January 1st, 1923. All orders on the books for delivery after January 1st will be filled by Crane Limited. Messrs. R. J. and W. J. Cluff, will in the future confine their efforts to manufacturing only, through Galt Brass Company, Limited.

CHANGE STRATFORD SEWAGE DISPOSAL PLANT

Stratford, Ont.—Certain changes are about to be made in the local sewage disposal, the plans for the proposed alterations having been approved and submitted to the Provincial Board of Health. These it is expected will be satisfactory and beneficial to all concerned.

MONTREAL MASTER PLUMBERS ELECT OFFICERS

Montreal.—Officers of the Master Plumbers' Association of Montreal for the coming year were elected at the annual general meeting of that body as follows: President, George E. Delaney; 1st vice-president, J. A. Francoeur; 2nd vice-president, J. Griffin; chairmen, sanitary committee, W. W. Hughes; arbitration committee, O. Caron; legislation committee, J. St. Amand; apprentices committee, J. Buchan; convenors, audit committee, W. G. Borland; trustees, J. A. Gordon; hon. secretary, J. A. Belisle; secretary, David K. Trotter. The report from the principal of the Technical School regarding plumbing and steamfitting classes recently inaugurated there showed 34 French and 20 English-speaking students, good attendance and satisfactory progress.

WAR AGAINST PLUMBING PRICES, FORT WILLIAM

Fort William, Ont.—Fort William has opened battle on plumbing prices and whatever forces lie behind their alleged maintenance on an abnormally high level, whether for equipment or work. Following the appointment of a special committee of the city council, a meeting was held, with plumbers and builders in attendance, at which the committee practically decided upon a course of action which will leave the door wide open for any person to engage in the plumbing business.

So long as the ordinary health of the city is guarded, no handicap will be placed in the way of plumbing installations of any kind. City regulations will be amended and licenses hitherto granted to master builders abolished, if the council approves the committee's proposals. Carrying the fight further afield, the committee intends finding out why fixture prices are held so high by factories and jobbers.

CRANE LIMITED TO OCCUPY NEW PREMISES

Crane Limited, Toronto, expect to occupy, by January 1, 1923, their new three-storey office and warehouse, Front St., West, which is to cost \$125,000.

GO AHEAD WITH SEWERS

Bridgeburg, Ont.—Fort Erie ratepayers at the January election will vote on a by-law authorizing the council to sell debentures for \$45,000 for a sewer disposal works, sewer pumping plant, force mains and the acquirement of necessary lands for the disposal works.

Actual sewers will be installed on the frontage-tax plan as the abutting property owners petition for them.

Plans for building a sewer system for the entire village, including the Garrison road and the Old Fort district, are complete.

SEWER WORK PROGRESSES

St. Thomas, Ont.—The construction of the storm sewer outlets in different parts of the city, in accordance with the plan for relieving the overloaded sanitary sewers recommended two years ago, is well under way, a gang of about 25 men being engaged in installing the East Wellington section off Fifth avenue. The work is providing employment for about 20 extra men in addition to the regular employees of the Board of Works Department. With favorable weather prevailing, it is expected that the work will be continued well into 1923.

PREFER DAMAGED TANKS TO INTERFERENCE WITH WATER

Fort William, Ont.—No city of its size, larger or smaller, anywhere has a water supply which in its relations to requirements renders more effective and efficient service than does the system owned and operated by the city of Fort William. The annual consumption approximates 1,093,000,000 Imperial gallons.

This water system was one of the first things that Fort William set out to do in a big way and it was one municipal venture which turned out to be 100 per cent. perfect.

The water is absolutely pure, so pure in fact that in order to slow up corrosion of galvanized water tanks a suggestion has been made that foreign matter be deposited in the forebay in order that sedimentary lining be provided for the tanks. The suggestion has not been received with any great outburst of popular applause as the public generally seem to prefer absolutely pure water to long-living water tanks.

Letters to the Editor

Dear Sirs:—

Would you please send me a copy of April 1st, 1922, issue of Sanitary Engineer. I understand that there is an article in this particular issue by Mr. Murray, of Saskatchewan, on some tests made for determining the temperature in septic tanks. I would be greatly obliged if you could send me a copy of this particular issue.

(Prof.) R. R. GRAHAM,
Ontario Agricultural College, Guelph, Ont.

Dear Sir:—

As a consistent advertiser in, and reader of, and contributor to your magazine, I wish to enter a protest against an article entitled "Big Opportunities Being Overlooked," which appears upon the first page of your December 1st issue. Whoever your correspondent is he either shows absolute ignorance of rural sanitation and water supply or has been so absurdly misquoted that his "Message to Garcia" has been made a burlesque. As those who live outside of the big cities know, there are many municipalities of no mean size which have a water supply but no municipal sewage system, and many more which have neither. This makes the question of sewage disposal an individual problem rather than a municipal one. If your correspondent is really in the plumbing supply business as you assert, how does he expect to sell his product in those localities "where water facilities are now available," and which he describes as "the cream of all business for the plumber," when he knocks the only system which makes plumbing installations possible in these centres? Furthermore there are thousands of rural schools being built and equipped, besides magnificent suburban homes. How would he handle these?

It is depressing as well as surprising that a man who poses as an authority comes out with the statement that while the present tank systems for sewage disposal adequately meet to-day's requirements, they are not as desirable in the interests of public health as a modern waterworks system. Of course a septic tank is not conducive to public health if it is used as a source of domestic water supply! We cannot recommend the effluent as a beverage—we positively cannot. A prominent Detroit engineer claims that the composition of toilet paper lends itself readily as a base for home-brew—but we beg to pass. Yours truly,

L. L. ANTHERS.

PROFITABLE FIELD FOR PLUMBER

(Continued from page 13)

neatly constructed traps around the rim of the sinks and left the end open. In doing this he was trying to prevent his traps from syphoning, but he was also leaving a half inch pipe wide open which was connected to the sewer side of the trap. In several fixtures steam traps were found discharging from soil pipes. This is bad practice as expansion and contraction caused the lead-in joints in a very short time to get out of place.

Unscrupulous Plumbers

It is most essential that plumbers should co-operate with the health department in every respect in order to get the best results. Unfortunately a

few instances have been found where plumbers have shown carelessness in their work, or were trying to save a few dollars in material. One rather glaring case was found recently where a Y had been cut into a rain water leader and sink installed but no precaution had been taken against syphoning of trap, by placing a vent pipe in the same.

Loose Closet Bowls

Many closet bowls were found loose at the floor, caused by the screws at the front corroding. These screws should certainly be of brass or rust-proof metal. If the bowl works loose on the floor it not only admits sewer air but the movement of the bowl causes the flush connection to leak and keep the lavatory floor wet and unsanitary.

Open Waste and Vent Pipes

It is remarkable the number of open waste and vent pipes found. An inspector has to trace the plumbing very carefully, especially in some of the old buildings that have been reconstructed several times to suit different tenants, or he will miss a lot of the defective work.

Unused Plumbing Fixtures

Too much lavatory accommodation is often a fault. In some buildings we found lavatories containing several closets were being used as storage rooms, closet bowls were covered up with stock, traps absolutely dry from evaporation, and admitting sewer air into the building, later to the lungs of the worker. This proves that any plumbing fixture which is not in constant use should be removed and the openings sealed.

Urinals

All urinals should have automatic flush, self-closing valves. Any device that must be operated by hand is unsanitary. Most people hesitate to take hold of a valve over a urinal because they realize a previous person infected with disease would probably leave infection there. The result is that the urinal is very seldom flushed.

Breathers and Breather Caps

A great many air inlet caps are found missing. In the majority of inlets where caps are missing they are choked with rubbish, most likely put there by children. The air inlet in use to-day can certainly be improved.

Drinking Bubbles

Unless the water pressure is good and strong, bubblers are not sanitary. One place was found where the water was just rising about an inch over the opening. A boy came along and placed the nozzle in his mouth, and was able to drink the water as fast as it came. Now if the pressure had been stronger, he would not have been able to keep his face down to the water.

(Continued on page 23)



Tourist (in village notion store)—Whaddya got in the shape of motor car tires?

Saleslady—Funeral wreaths, life preservers, invalid cushions and doughnuts.

* * *

"No, sah, Ah don't never ride on dem things," said an old colored woman looking in on the merry-go-round. "Why, de other day I seen dat Rastus Johnson git on an' ride a dollah's worth an' den git off at the same place he started at. I says to him, 'Rastus,' I says, 'yo spent yo' money, but whar yo' been?'"

* * *

"Then, when you have finished your lecture," said the professor of elocution and deportment to young Dulle, "bow gracefully, and leave the platform on tiptoe."

"Why on tiptoe?" queried Dulle.

"So as not to wake the audience," replied the professor.—Judge.

* * *

A red-headed boy applied for a job in a butcher shop. "How much will you give me?"

"Three dollars a week; but what can you do to make yourself useful around a butcher shop?"

"Anything."

"Well, be specific. Can you dress a chicken?"

"Not on three dollars a week," said the boy.—Life.

* * *

Dibbs: "Where are you going in such a hurry?"

Gibbs: "To the police station to get a warrant for my wife's arrest."

"On what charge?"

"Rocking me to sleep."

"You can't have your wife arrested for that."

"Can't eh? You should have seen the rock!"—Exchange.

* * *

"You look like an idiot," thundered the disgusted man to his swell son, just returned from college. "You grow more and more like a conceited, hare-brained, helpless idiot." Just then an acquaintance of the old gentleman entered the office and saw the youth.

"Hello, Charlie, back eh!" exclaimed the visitor. "You're looking more like your father every year."

"Yes," said Charlie, "that's just what the governor's been telling me."

APPRECIATES HELP OF "SANITARY ENGINEER"

J. P. Ibbotson writes to Sanitary Engineer stating that the outlook for sanitary work in the rural districts in the next few months is fairly good. Farmers are said to be more disposed to invest in sanitary equipment. He finds that personal work in encouraging the replacement of worn equipment brings good results. He states that his biggest problem to-day is in connection with collections.

Concerning Sanitary Engineer Mr. Ibbotson states, "I like the paper and appreciate the help it gives. The articles now being published on Rural Sewage Disposal are excellent, so are those on pattern cutting."

TAP THREE SOURCES FOR WATER SUPPLY

Montreal.—Such is the quantity of water required to carry on the business of the Mount Royal Hotel, that three sources of supply have to be drawn on to meet the demand. Water is taken from the high pressure and also the low pressure mains of the city of Montreal, besides which the hotel is equipped with an artesian well, 950 feet deep, from which 8,000 gallons per hour can be drawn.

The diameter of this well is ten inches. A 10-inch steel casing with a drive shoe was inserted from the surface of the ground 12 feet into the bed rock for the purpose of casing off the 34 feet of clay and 11 feet of hardpan and surface waters encountered. The 10 inch well was drilled through 850 feet of chazy, trenton, and calciferous limestone rock.

From two water veins encountered at 362 and 855 feet a supply of 7,200 gallons of pure water per hour at a temperature of 52 degrees Fahrenheit was pumped, maintaining a level of 133 feet from the well top. The water is delivered by means of No. 7 type V. A. Imperial air lift supplied from two 12 x 10 air compressors, the one for service operation being electrically driven and the one for reserve having steam drive.

From all these sources, cold water is pumped or forced by the operation of the law of gravity, to two 10,000 gallon storage tanks on the roof, with a horizontal overhead distribution main delivering water to all fixtures throughout the building. All water for general house purposes is filtered by a battery of filters, and water for laundry purposes is treated by a water-softening plant.

Drainage water from the basement and boiler room is pumped to the sewer by three ejector pumps. The combined capacity of these three ejectors is 850 gallons a minute. Five hot-water heaters supply hot water, with a combined capacity of 19,000 gallons per hour. Exhaust steam is being largely used in supplying the heat for these heaters.

Use of Trade Acceptances is Extending

To Avoid Losses and the Husbanding of Funds, Trade Acceptances Replacing Open Accounts in Many Instances—Book Debts Have Caused Much Trouble in Assignments

TO AVOID losses in most cases, and a desire to husband funds in others, are the material factors in spreading the movement in the Dominion in favor of trade acceptances with a consequent abandoning of open accounts. It is rather surprising to find the number of firms using this method of doing business to-day and also the percentage that have been employing it for years. Out of a large file of letters giving views on the efficiency of trade acceptances over open accounts, not one argued against the proposal, while many offered reasons and arguments in favor.

Recently the Canadian Credit Men's Trust Association of Winnipeg, focused attention on the matter by sending a plea to many business organizations for assistance and co-operation in increasing the use of trade acceptances, drafts and bills of exchange, in commercial transactions and to decrease as far as possible the system of open accounts.

One of the main arguments in favor of such a move is that the Bankruptcy Act of 1921 made null and void general assignment of book debts as against the trustee in bankruptcy, except in provinces where there is provision for registration. The draft or bill of exchange is, therefore, advanced as a legal admission of liability when accepted by the customer, whereas book debts have in the past proven the subject of never-ending disputes.

The Canadian Manufacturers' Associa-

tion took the matter up with its membership and received quite a general response in the way of letters. To these might be added the views of some bankers. One of the latter stated that the time was coming when drafts and bills of exchange will be almost exclusively used. Many industrial heads of the Dominion stated that they were reluctant now to carry an open account for any firm and did not do so if they could possibly avoid it.

"As a young concern we found it very inconvenient to have large sums tied up in open accounts," wrote one maritime firm. He said it was found to be the only proper method of settlement and enabled them to get along much better on their limited capital.

An old banker, now the head of a large industrial organization, declares that he long realized the great benefit of trade acceptances. He never encouraged open accounts. His main reason for this was that they caused a great portion of the business losses of the day.

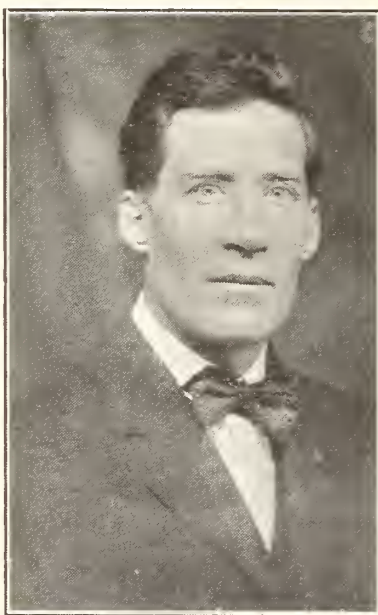
One Montreal miller declares that he has not kept an open account for some time and declares that to-day all milling sales are subject to either draft or note.

The one stumbling block discovered relates to the stamps on bills of exchange. Some of the business men fear that they would lose considerably on unaccepted paper. However, there is a movement in this regard in co-operation with the larger one. It is to have the stamps payable only once. The details of how it is proposed to work this out have not yet been advanced.

MAKES A REPORT ON SANITATION

Ottawa.—During the year just closing greatly improved conditions existed in Ottawa along sanitation lines, according to the 22nd annual report of Chief Sanitary Inspector G. O. S. Laflamme. Only 19,464 calls were dealt with, as compared with 23,420 the previous year.

"It is unfortunate," he states, "that the progress which had been made during the last couple of years in reducing the number of privy vaults should have been interfered with this year, through the granting of permits in the west end of the city. In the majority of cases these privies are isolated from the sewerage system. I would respectfully submit that in future no such permits be granted without the authority of the medical health officer, and that it be understood that, where at all possible, the privies must be connected with the sewage system."



GEORGE E. DELANEY
Elected President Montreal Master
Plumbers' Association for 1923.

Market Conditions and Tendencies

Price Trend on Sanitary and Heating Supplies

ALTHOUGH several price developments in the sanitary and heating markets are apparently anticipated during the opening weeks of the New Year, the number of revised quotations at the present time is somewhat limited. This is commonly attributed to the influence of the holiday atmosphere in the markets. A much firmer undertone is apparent, however, especially in certain

basic elements which contribute towards maintaining current levels on many manufactured plumbing lines. The degree of improvement recently outlined in the asbestos market continues, and quotations have firmed up to more uniform levels on comparative centres. The ad-

vance of one dollar per ton in pig iron indicates a reversal of the former price trend. Radiator valves are now generally quoted at the discount level of 58 per cent., as briefly outlined in the last issue. Cotton wastes continue at the revised levels, but decided firmness is recorded. That some price developments may materialize on closet outfits is the opinion prevalent in the trade, while similar rumors are noted with regard to cast iron fittings.

Montreal Markets

MONTREAL, December 30.—Although actual price changes are fewer on the current markets for plumbing and steam-fitting supplies, developments on primary markets attract attention. Following a continued slump in pig iron prices for some weeks past, quotations are now advanced one dollar per ton. This upward tendency is looked on by some as the turning point, and a firmer tone from now on will be displayed. There is still a strong undertone in cotton waste prices, and higher prices are looked for in some quarters early next month. Wrought iron and steel pipe is in a firm market position, and other lines of iron and steel products, such as sheets and bar products, show a strengthening tendency. Valves and bibbs are unchanged in price, and although this market is described by most manufacturers as steady to firm, there is still a feeling in some quarters that slight revisions will be announced early in the new year. Ingot metals are quiet, but firm in tone. Trade in most lines is quieter, although described as quite seasonal.

IMPROVED TONE IN BRASS AND COPPER PRODUCTS

Montreal.

With copper on primary metal markets displaying a firmer tone there is a strengthening attitude in such finished products as sheets, rods and tubing. Demand for these lines is also said to be fair for this time of year, and if anything a little better than in previous weeks. Quotations are unchanged and are described as steady at the following levels:

BRASS—	Base.
Rebate of 20 cents for empty bags.	
Sheets, base	0 24
Rods, base ½ to 1 in., round...	0 22
Tubing, seamless, base	0 30
F.o.b.	

COPPER—	
Rods, ½ to 2 in.	0 29
Soft sheets, plain, 16 oz. and heavier	0 30
Plain tinned, 16 oz. and heavier...	0 36
Polished, and tinned, 16 oz. and heavier, lb.	0 41
Tubing, lb.	0 41
Tubing, lb.	0 32
Above prices are full sheets and bars. Cut sheets and bars are 5c. per lb. higher.	

QUIET MARKET FOR MALLEABLE AND CAST FITTINGS

Montreal.

With the annual inventory period now practically at hand, there has been a noticeable slackening in demand for pipe fittings during the past week, and a quieter market is now anticipated for

the opening weeks of the new year. Although there is no definite indication of a change in prices, it is stated in some quarters that slightly easier quotations may appear on some lines next month. Present discounts are as follows:

PIPE FITTINGS—

Cast iron fittings	27%
Plugs, cast iron	27%
Do., solid	27%
Do., countersunk	27%
Bushings, cast	30%
Do., malleable	30%
Unions	45%
Flanged unions	27%
Flanged fittings	27%
Dart unions, black, ... 33	1-3%
Dart unions, galv.	13%
Nipples, ½ to 4", close and short	55%
Do., long	60%
Do., 4½ to 8", close and short	45%
Do., long	50%
Couplings, 4" and under	25%
Do., 4½" and larger	5%
Malleable Fittings—	
Piece list effective June 1st, 1922. Discount 70 per cent.	

HOLIDAY SEASON REFLECTED IN SCRAP MARKETS

Montreal.

Winter dullness, reflecting the holiday season, is evident in the local markets for waste materials, trade being generally described as very quiet. Accompanying this is a little weaker tone in some lines, especially yellow and red metals. Brass and copper showed a slight improvement when there was a better buying movement noted in recent weeks,

but interest has now subsided to quite an extent. Cast iron is also in a listless state, while steel scrap is reported as the steady material on the list. No changes in prices have been made, and following are dealers' average buying quotations:

SCRAP MATERIALS—

Automobile Tires ..	0 40
Rubber shoes ..	0 02½
Yellow brass	0 05 to 0 06
Red brass	0 08½
Light brass	0 04
Scrap zinc	0 04½
Lead, heavy	0 04½
Lead, tea	0 03
Light copper	0 08½ to 0 09
Heavy copper	0 11½
Wrought iron, R. Rd., No. 1 per gr. ton	11 00
Malleable scrap (ton) ..	9 00 to 10 00
Pipe scrap (ton) ..	7 50
Heavy melting steel	9 00 9 50
No. 2 busheling	3 00
Boiler plate	3 00 to 9 00
No. 1 machinery cast	20 00 to 22 00

MORE SATISFACTORY CONDITION IN IRON AND STEEL

Montreal.

A steady to firm attitude is again presented in the market for bar iron and steel products. Current business is only fair, and orders are for the most part small and of a sorting character, reflecting the usual condition at the present holiday and inventory period. As outlined in former reports, however, there is more interest showing for future, and forward deliveries are being made at to-day's prices. As in other iron and steel commodities, it is expected that bar products will show an improved market tone, with a steady to firm situation assisting in this direction. Local average quotations are as follows:

BAR IRON—

Common bar iron, 100 lbs.	3 15
Refined iron	4 65
Irish finish machinery steel	3 20
Mild steel	3 15
Single reeled machinery steel	5 25
Band steel	3 50
Spring steel	4 75 8 50
Sleighshoe steel	3 15
Tire steel	3 35
Harrow tooth steel ..	3 30
Toe caulk steel	4 05
Mining tool steel, per lb.	0 20½
Black Diamond tool and cast steel, per lb.	0 21½
NOTE—Refined iron is approximately \$1.50 per 100 lbs. over base, but fluctuates owing to unsettled market.	

Band steel in scroll bundles, 50c per 100 lbs. extra.

FIRM UNDERTONE REMAINS IN COTTON WASTES

Montreal.

With current trade in cotton wastes continuing in seasonal proportions, a firm undertone remains in the market due to the improved tone in raw cotton circles. As outlined in a previous report a further revision upwards in prices would not be surprising after the first of the year. Prevailing quotations are:

COTTON WASTES—	Per lb.
Cream polishing	0 19
White, XXX extra	0 17
White, XX grand	0 16
White XLCR	0 15
X Empire	0 13½
X Press	0 12
Colored—	
Fancy	0 14
Lion	0 12½
Standard	0 11
Popular	0 09½
Keen	0 08
Wool Packing—	
Arrow	0 24
Axle	0 20
Anvil	0 16
Dominion Wipers—	
White cotton	0 20
Colored cotton	0 14

WROUGHT PIPE IS NOW QUIETER BUT FIRM

Montreal.

Although the movement of wrought iron and steel piping has recently slackened somewhat, this is only considered seasonal, and satisfaction with business during the past season is expressed. Producers again state that present prices are firm with a strong tendency in raw materials, deliveries on some of which are still slow. Quotations remain at list No. 57.

STEADY OUTLOOK IN SHEET MARKETS

Montreal.

Interest in the local sheet markets is still attached to prospects for the opening months of next year, and it is said that the New Year should open with quite satisfactory conditions in sheet circles. Manufacturers are in many instances behind in deliveries, which, in spite of the present quieter season, should greatly assist towards maintaining a steady market position. Another factor is the apparently steady basis on which sheets are placed for the first quarter, which has resulted in considerable business being placed for later delivery. Taken altogether importers and distributors anticipate a satisfactory market for the first half of next year at least. Average local quotations are unchanged as follows:

BLACK SHEETS—		
10 gauge, base	4 25	
12 gauge	4 35	
14 gauge	4 45	
16 gauge	4 55	
18—20 gauge	4 80	
22—24 gauge	4 85	
26 gauge	4 90	
28 gauge	5 10	
GALVANIZED SHEETS—		
	Queen's Head	Fleur de Lis
28 gauge	7 25	7 00
26 gauge	7 00	6 75
24 gauge	6 70	6 45
22 gauge	6 65	6 40
18—20 gauge	6 40	6 15

Other Brands—

10½ oz.	7 00
28 U. S. base	6 50
26 U. S. base	6 25
24—22 gauge	6 10
20 18 gauge	5 90
16 gauge	5 75

Above prices are for ½ ton lots in English iron and 1000 lb. lots in American iron with an extra charge of 25c. for less quantities. Extra for sheets 3 ft. wide, 28 gauge and 10½ oz., 25c. per 100 lbs. Further extra for sheets 4 ft. wide according to gauge.

TIN PLATE—

20 x 28 x 100 lb. basis	12 35
20 x 28 IC, 112s	12 75
20 x 28 IX, 112s	15 00
20 x 28 IXX, 56s	8 50
20 x 28 IXXX, 56s	10 00

TERNE PLATE—

20 x 28 IC, 112s, 200 lb.	13 50
20 x 28 IC, 112s, 214 lb.	13 00

CANADA PLATE—

Half bright 52s	4 85
Half bright 60s	4 90
Blued 52s	5 10
Blued 60s	5 15
Welsh, polished, 52s	6 50
Welsh, polished, 60s	6 75
Galvanized 52s	7 25
Galvanized 60s	7 75

NO CHANGE IN VALVE AND BIBB QUOTATIONS

Montreal.

Current quotations on valves and bibbs are unchanged, and while the market is described as steady in most quarters, there is still a feeling among some that minor revisions on certain lines will be made early in the new year. Recent minor fluctuations in raw materials have apparently not materially affected the market for finished products. Prevailing discounts are:

VALVES—

Compression work, standard	45%
Fuller work, standard	30%
Quick opening compression bibbs	43%
Bath cocks, quick opening	41%
Bath cocks, compression	41%
Basin cocks, quick opening	46%
Flatway stop and waste cocks, standard	54%
Roundway stop and waste cocks, standard	46%
Brass steam cocks, standard, ¼ in.	60%
Radiator valves, standard	58%
Do., removable discs	58%
Globe, angle and check valves, standard	25%
Gate or straightway	25%
Emco globe valves	33%
Emco check valves	33%
Jenkins globe, angle, check and swing	
check	10%
Jenkins gate or straightway	16%
Montreal.	
Jenkins iron body, globe and angle	15%
Jenkins iron body, gate	25%
N. P. "O" and "S" traps	40%

FIRM TENDENCY REMAINS IN RANGE BOILERS

Montreal.

Manufacturers and distributors of range boilers describe business as quieter, although fair for the time of year. Stocks in dealers' hands have been low, and remain so, thus demand while for small quantities has continued well up to the holiday season. There is a firm tone in the market owing to the strong tendency in raw material and other replacement costs, and following are list prices and discounts:

RANGE BOILERS—

5 Gallon	\$13.50
12 "	14.00
18 "	15.00
25 "	16.50
30 "	17.50
35 "	20.50
40 "	22.75
52 "	38.00
66 "	60.75

82 "	74.00
100 "	105.00
120 "	117.00
144 "	164.00
168 "	187.00
192 "	210.00

Std., less 40 per cent.; Ex. Heavy, 30 per cent.

SEASONABLE TRADE IN LEAD AND ZINC PRODUCTS

Montreal.

Quotations on lead and zinc products remain unchanged, with primary metals, which enter into their production, reported as steady to firm at higher levels recently reached. The movement of the finished products is seasonal, only a moderate amount of activity usually being in evidence at this time of year. Following are unchanged price levels:

LEAD AND ZINC PRODUCTS—

Lead pipe, per 100 lbs., up to 2"	14 00
Do., 2" to 8"	15 00
Do., 8" and over	16 00
Lead waste, per 100 lbs.	15 00
Note—Lead pipe is subject to a discount of 10%.	
Lead traps and bends	15%
Lead wool, lb.	0 13½
Lead sheets, 2½ lbs., sq. ft. lb.	0 11
Lead sheets, 3 to 3½ lbs., sq. ft. lb.	0 10½
Do., 4 to 8 lbs., sq. ft. lb.	0 10
Cut sheets, ¼ c. lb. extra and cut sheets to size, ¾ c. lb. extra.	
Solder, guaranteed, lb.	0 26½
Do., strictly, lb.	0 23½
Do., commercial, lb.	0 22½
Do., wiping, lb.	0 22½
Do., wire, lb.	0 36
Zinc, sheets, casks	0 11
Do., broken lots	0 11½

KNIFE HANDLED WRENCHES AT HIGHER LEVELS

Montreal.

Through a revision in discounts quotations on W. & B. knife handled wrenches are advanced, and these are now less 37½ per cent. Coes' are quoted at 30 per cent. off.

BOILER TUBES MOVE IN SMALL QUANTITIES

Montreal.

Boiler tubes are only selling in limited quantities, and the market is described as quiet. Deliveries from the mills are a little slow but because of the quiet demand no shortage is felt. Quotations are unchanged at the following average prices:

BOILER TUBES—

	Seamless	Lapweld
1 inch	20 00	....
1¼ inch	22 00	....
1½ inch	21 00	....
1¾ inch	24 50	24 00
2 inch	21 00	19 75
2¼ inch	24 00	22 25
2½ inch	27 00	23 25
3 inch	33 00	29 50
3½ inch	38 00	34 25
4 inch	49 00	43 50

MODERATE TRADE IN SOIL PIPE AND FITTINGS

Montreal.

Current trade in soil pipe and fittings is now said to be of moderate proportions, although fair for this season of the year. Regarding the undertone of the market for these products a local manufacturer stated that they were watching more recent developments in the pig iron market with interest, and

while the advance in prices last week was of a minor nature, it may mean the turn to a stiffer market which would directly reflect on products such as these. With pig iron continuing to show recessions their products were placed on an easier market although supplies on hand were sufficient to carry them over the present quieter period. It was now very problematic what existing values would be when they were again in the market for raw material. Unchanged quotations are:

SOIL PIPE—

2 and 3 inch	35%
4 inch	35%
5 and 6 inch	35%
8 inch	net

FITTINGS—

2 to 6 inch	45%
8 inch	net

QUIETER PERIOD NOW EVIDENT
IN CORRUGATED

Montreal.

Following a quite satisfactory movement in corrugated sheets up to the present time, there is now a slackening in sales with the appearance of the holiday season. Quotations on these products are unchanged and the market is again described as steady. Following are list prices and discounts:

CORRUGATED SHEETS— Per 100 Sq. Ft.

No. 28 gauge	6 50
No. 26 gauge	7 00
No. 26, U. S. gauge	8 00
No. 24 gauge	9 00
No. 22 gauge	11 00
No. 20 gauge	12 50
No. 18 gauge	16 50
Less 10 per cent.	
Lighter than 24 gauge and wider than 27 inches, 75c. per square extra.	

STEADY TONE NOTED IN ASBESTOS PRODUCTS

Montreal.

Notwithstanding a little quieter demand in asbestos products, and higher price levels recently announced, a steady to firm undertone is still noted in the market. Trade in pipe and boiler coverings has slackened during recent weeks, but there is a fair amount of activity reported in magnesia coverings, and slower deliveries also add to the firmer tendency on this product. Following are unchanged quotations:

ASBESTOS PRODUCTS—

	Off list prices
2 ply pipe covering	57 1/4%
3 ply pipe covering	55%
4 ply pipe covering	50%
85% magnesia	40%
	Per bag
Boiler covering	1 50
	Per 100 lbs
Asbestos sheathing	7 75 8 25

ADVANCED PRICES ANNOUNCED
ON PIG IRON

Montreal.

After a receding market for some weeks past, domestic pig iron prices are now advanced \$1.00 per ton. Although this marks a sudden reverse trend, this development does not come as any great surprise to some well informed, as the former level was recognized as well

down to bottom and with conditions in the steel industry promising well for the New Year it was thought improbable that prices would remain at levels recently announced. Reports from United States markets show that many consumers took advantage of the reduced prices and this was a strong factor in producing higher quotations. An advance of \$1.00 per ton is also announced this week in some quarters on these markets. Although local producers of steel products are sufficiently supplied with pig iron for the opening months of the new year at the present ratio of operation, stocks are by no means heavy and a trade revival would place them in the market for pig before many weeks pass. Present local quotation is \$34.15 per ton.

SEASONAL DEMAND NOTED IN
ENAMELED WARE

Montreal.

Enameled ware continues to move in fair seasonal volume, although the holiday period has produced a quieter market during the past week or so. No change is made in quotations, and following are list prices with discount of 33-1/3 per cent.:

ENAMELED WARE—

Sinks, roll rim—	
18 x 30	\$23 00
Sinks, flat rim—	1 only 2 only 3 only
16 x 24	\$ 7 50 \$ 7 40 \$ 7 30
18 x 30	8 70 8 60 8 50
20 x 30	9 90 9 80 9 70
Bath tubs, roll rim, 4, 4 1/2, 5 feet, 24 to 30 in. wide	51 40
Bath tubs, 5 1/2 feet.	57 10
Lavatories—	
17x19 in. Apron F139 or P4045	15 30
18x24 in. Apron F154 or P3847 or P3847	23 60
18x21 in. Apron F169 or P4205	17 60
17x19 in. Roll rim. F241 or P4345	12 60
Less 33 1-3 per cent.	

QUIETER TRADE IN CLOSET COMBINATIONS

Montreal.

Current trade in closet outfits, as in other enameled ware, continues on the quieter side. There is little or nothing new in the market, and quotations are nominally unchanged at following price levels:

CLOSET COMBINATIONS—

Low down outfits, each	25 00
Closet, standard outfit, oak	25 00
Do., post hinge seat	26 00
Do., oak vitro or Pussyfoot	26 00
Do., post hinge seat	26 20
Do., mahogany vitro or Pussyfoot, post hinge seat and cover	28 45
Do., vitreous china, oak post hinge seat and cover	28 45
Do., vitreous china, mahogany post hinge seat and cover	29 50
Do., white Vitro mahogany post hinge seat and cover	29 50
Mahogany post hinge seat and cover	28 70
Do., enamelled iron tank, oak post hinge seat and cover	29 50
Do., enamelled iron tank, oak post hinge seat and cover	29 50
post hinge seat and cover	29 50
Add for 3/4 in valve on supply pipe	1 25
Add for spud	0 60
Add for reverse trap bowl	1 50
Add for syphon jet bowl	7 00
Deduct for supply pipe	0 80
Deduct for floor hinge	0 60

CLOSET BOWLS—

Richelieu bowl	8 50
----------------------	------

Washdown bowl with spud	10 60
Reverse trap bowl with spud	11 35
Syphon jet bowl with spud	16 25

CLOSET SEATS—

Oak post hinge seat and cover	3 85
Oak wood strip seat and cover	3 50
Mahogany finish post hinge seat and cover	4 05

CLOSET TANKS—

Low down, oak vitro with fittings, less seat	12 25
White vitro or Pussyfoot with fittings, flush elbow and supply	15 65
Vitreous china tank with fittings, flush elbow and supply	19 00
Enamelled iron with fittings, flush elbow and supply	16 50

INGOT METALS ARE QUIETER BUT
CONTINUE FIRM

Montreal.

Ingot metal markets remain quite firm although there are certain evidences that the holiday spirit is prevailing. Copper is the feature of the market, this metal being particularly strong in tone, although there is no sign of weakness in any other lines.

TIN.—After showing a sharp advance in London the early part of the week tin re-acted slightly, but the tone is still firm and it is thought probable that higher prices will rule after the holiday period. The advance in sterling means higher prices on this side. Local price is slightly higher at 43 cents.

COPPER.—The situation on this metal has altogether changed during the past few weeks, and the tone of the market is very firm. Electro is quoted at about 14 1/4 cts., refinery, i.e., an advance of almost one cent in two weeks. London also reflects the improved tone on this side and export has picked up as well as local consumption. Market is firm here at 18 cts. for electro and 17 1/2 cts. for casting.

LEAD.—Another advance in trust price was recorded in the U. S. A. this week, while London also went to a higher level. Demand remains remarkably good and production is only about equal thereto. Local quotation 8 cents.

SPELTER.—East St. Louis has again re-acted on cessation of English buying, but it is thought that a seven-cent level will bring about a resumption of this, and further advances may follow. The statistical position of this metal remains good as supplies are still short and it will be difficult to increase production during the winter months. Local prices are firm from 9 1/4 to 10 cents.

ANTIMONY.—There is no particular feature to this market, but offerings from China are said to be fairly heavy and reasonable in price. This metal is undoubtedly cheap and it is thought only a question of time until an advance is made. Chinese is quoted at 7 1/4 cts., high grade English at 7 3/4 cts.

ALUMINUM.—Aluminum is firm in the U. S. A., but the market is quiet here with quotation unchanged at 22 cents.

Toronto Markets

TORONTO, December 30.—Only a minor number of price developments are recorded in the current plumbing and steam-fitting supply markets. A few revisions are evident, however, such as the higher quotations on certain asbestos products—which development was foreshadowed in earlier reports—and the fact that radiator valves are now generally being quoted at the discount level of 58 per cent. The recent increase in pig iron prices attracts attention in primary sources, this being a reversal of form as regards the prevailing price tendency in this direction. That there may be some revision in pipe fitting prices is the current impression in certain quarters of the trade, while the rumor is also prevalent concerning possible future revisions in closet outfits.

PRICES ADVANCED ON ASBESTOS PRODUCTS

Toronto.

As foreshadowed in a former issue of Sanitary Engineer, a revision has now been made in quotations on asbestos products. Discounts on air cell pipe covering have been reduced ten points, thus bringing higher price levels into effect on these products. Asbestos sheathing is likewise advanced, the new price being around eight cents per pound. Magnesia pipe covering also undergoes a similar revision, while boiler covering appears with an upward tendency. This revision is attributed to the firmer trend in primary markets, a condition previously pointed out. There is a shortage of asbestos fibre at production centres, and manufacturers state that under the present trend of the market, another advance might be expected should the upward movement continue in basic elements. Following are revised quotations:

ASBESTOS PRODUCTS—

Pipe Covering—	
Air cell, 4 ply	50 per cent. off list.
Air cell, 3 ply	55 per cent. off list.
Air cell, 2 ply	57½ per cent. off list.
Boiler Covering	\$1.50 — \$2.00 per bag.
Asbestos Sheathing	\$8.00 per 100 lbs.
Magnesia pipe covering	less 35 per cent.

PIG IRON PRICE IN SEE-SAW MOVEMENT

Toronto.

Following the recent reduction in pig iron prices of \$2.00 per ton, an advance has been recorded this week, which indicates the improved activity of the market as outlined in a former issue. The extent of the increase is \$1.00 per ton, this change bringing the prevailing quotation up to \$31.80. Brisk activity in placing contracts at the former level is described as leading to the current revision.

COTTON WASTES CONTINUE AT REVISED LEVELS

Toronto.

Quotations on cotton wastes are still holding at the recently revised levels, and while the opinion has been expressed in certain quarters that further upward movement might develop early in the New Year, up to the present no change of this kind has materialized. It is generally recognized, however, that prices are on a firm basis, and should raw cot-

ton continue to climb and this factor be reflected in cotton wastes, the opinion is expressed that additional slight increases would not be surprising. The following levels govern the local markets at present:

COTTON WASTES—

Cream, polishing	0 19
White, XXX	0 19
XX	0 17
X	0 16
XC	0 14½
XXX, extra	0 17
XX, grand	0 16
XLCR	0 15
X, Empire	0 13½
X press	0 12
Colored, No. 1	0 13½
No. 17	0 12½
No. 1A	0 11½
No. 1B	0 10½
Fancy	0 14
Lion	0 12½
Standard	0 11
Popular	0 09½
Keen	0 08

Above lines subject to trade discount for quantity.

MAY BE REVISION IN CAST FITTING PRICES

Toronto.

Business in pipe fittings is stated to be just on a fair basis at present. While reports from certain distributors describe trade as "ordinary for this time of the year," others state that it is "not good." It is evident that there is no activity worth mentioning and not much is expected during the stock-taking period. That some revision may develop early in the New Year on cast iron fittings is rumored on the local market, slightly easier levels being said to be pending on account of anxiety in certain quarters to open up the market. Discounts in general remain unchanged at the following levels:

PIPE FITTINGS—

	Per Cent.
Cast iron fittings	27
Plugs, cast iron	27
Do., solid	27
Do., countersunk	27
Bushings, malleable	30
Do., cast	30
Unions, ¼ in. to 2 in.	45
Do., ¼ in., 2½ to 4 in.	45
Flanged unions, std.	27

RADIATOR VALVES NOW AT 58 PER CENT. OFF

Toronto.

Manufacturers and distributors record a fair volume of activity keeping up in brass compression goods. Trade for this time of the year is described as brisk, a condition caused generally by

recent building operations, and repair work. In conjunction with the current annual inventory period, the hum of activity in warehouses is therefore evidently reflecting these causes. Quotations remain unchanged, with the tone of the market steady. Raw materials have fluctuated within narrow limits, but no marked developments have been recorded. Radiator valves are generally quoted at 58 per cent. off, as a result of the unsettlement referred to in recent market reports.

VALVES—

	Per cent
Compression work, standard	45
Fuller work, standard	30
Bath cocks, compression	41
Do., Fuller	25
Flatway stop and wastecoaks, stand'd.	54
Roundway stop and waste cocks std.	46
Brass steam cocks, standard ½" to 2"	50
Do., 2½" to 3"	43
Globe, angle and check valves, std.	25
Mueller globe, angle and check	25
Mueller composition disc steam valves ..	33
J.M.T. valves, screwed	10/10
J.M.T. gate valves, screwed	16/10
Jenkins gate or straightway, screwed ..	16/10
Jenkins, globe, screwed	10/10
Radiator valves, standard	58
Do., removable disc	58
Emco, J. D., rad. valves, screwed	33
Emco swing check, ¾" and ½"	40
Do., other sizes	33
Webber gate valves, screwed	33
Emco globe valves, std.	25
Emco globe valves, J.D., screwed	33

Basin Cocks—

No. 0 and 1 Fuller pattern	30
Quick opening No. 3633	50
No. 3623, plain or index handle	34
Flanged Fittings	30
Dart unions, blk., ¼ to 2 in.	34
Do., ¼ in., 2½ to 4 in.	28
Do., galvd., add to black	30
Nipples, blk., and galvd. ½ to 4 in.	
close and short	55
Do., 4½ in. and larger	45
Do., long, ½ in. to 4 in.	60
Do., 4½ in. and larger	50
Do., running thread	35
Couplings, 4 in. and under	25
Do., 4½ in. and larger	5

MALLEABLE FITTINGS—

New piece list, effective June 1, 1922.
Discounts, Classes, A.B. and C, less 70 per cent.

SATISFACTORY TRADE IN SOIL PIPE AND FITTINGS

Toronto.

Business in soil pipe and fittings is described as keeping up remarkably well for this time of the year. A brief review of trade during 1922 indicates that the volume of business has been of a more satisfactory nature, with good prospects ahead for the coming year. Prices remain on a firm basis, with little likelihood of change at present. While the current pig iron market is at easier levels than formerly, it is pointed out that existing quotations are no lower than was the case early in the fall when a revision in soil pipe discounts was put into effect. With raw materials generally showing a firm trend and with labor costs on an equal basis, it is stated that production costs hardly permit of downward revisions at this time. Current quotations follow:

SOIL PIPE—

2 inch	Less 33 1-3%
3 inch	Less 33 1-3%
4 inch	Less 33 1-3%
5 and 6 inch	Less 33 1-3%
8 inch	net

FITTINGS—

2 to 6 inch	Less 45 per cent.
8 inch fittings	net.

SPASMODIC TRADE NOTED IN BOILER TUBES

Toronto.

Current trade in boiler tubes is now stated to be of a spasmodic nature. The improvement in volume which was formerly recorded has now subsided somewhat, although fluctuations in the amount of business are more or less evident. Prices are continuing on a moderately steady basis, with the upward tendency still being recorded in certain primary centres owing to the somewhat uncertain future position of raw materials. Domestic quotations remain unchanged at the following nominal levels:

BOILER TUBES—

Size	Seamless.	Lap-weld
3/4 inch	\$19 00	\$.....
1 inch	20 00	.....
1 1/4 inch	22 00	.....
1 1/2 inch	24 00	.....
1 3/4 inch	24 00	23 00
2 inch	22 00	19 00
2 1/4 inch	24 00	21 50
2 1/2 inch	27 00	23 50
3 inch	34 00	28 50
3 1/4 inch	36 00	33 00
3 1/2 inch	38 00	33 00
4 inch	50 00	42 00

SLIGHT BETTERMENT IN BRASS AND COPPER

Toronto.

With a slightly firmer attitude recorded in primary metal centres, the conditions of brass and copper products is again stated to be on the road to improvement. Current trade in sheets, rods and tubing is described as fairly good for this time of the year, and slightly better in volume than was evident a few weeks ago. This is attributed to the general improvement in business conditions, coupled with a more active interest in raw materials. Prices on these products remain unchanged at the following levels:

BRASS—

Sheets base, per lb.	0 23
Rods, base, per lb.	0 22
Tubing, base, per lb.	0 30

COPPER—

Rods, base, per lb.	0 30
Soft sheets, plain, 1 oz. and heavier, lb.	0 29
Do., plain tinned, 16 oz. and heavier, per lb.	0 36
Do., polished, and tinned, 16 oz. and heavier, lb.	0 41
Tubing.	0 33

REVISION MAY DEVELOP IN CEMENT PRICES

Toronto.

That some minor revision may develop on cement quotations early in the New Year is the current opinion found in production centres. Prices on cement have remained on a steady basis for some time. There is very little moving at present, but business is described as normal and satisfactory for this season. Another brisk period of building activity is anticipated for 1923, with some indication that large construction work will be on a heavier scale than was the case in the past season. Prevailing quotations follow:

CEMENT—

Car load lots.	Toronto.
Per barrel, delivered	3 63
Less car lots.	
Per barrel, f.o.b. yard.	4 35
Per barrel, delivered	4 55

Single bags, \$1.15 each; 4 bags to barrel.
Extra charge of \$1.50 per load on less than 24 bag lots.
Rebate of 20 cents for empty sacks.

NO ACCUMULATION ON WROUGHT PIPE STOCKS

Toronto.

While the volume of business in wrought piping during the winter months is somewhat restricted on domestic markets, and is considerably reduced during the holiday and inventory periods from the brisk activity recorded a couple of months ago, yet owing to a continued shortage in the supply of certain raw material it is pointed out that mills are not able to accumulate any degree of stocks. This factor has also contributed towards the maintenance of firm price levels on pipe, while it is stated that for these reasons the probabilities are that deliveries will be slow during the early part of 1923. As pointed out in previous reports, more activity has been recorded in smaller sizes of black and galvanized pipe due to the building boom of the dwelling house variety experienced in the past season. On the other hand, the movement of larger sizes, three inches and up, has been retarded because of the lack of industrial building under construction. While quotations on wrought piping were advanced several times during the past year, each increase was of minor extent and the aggregate advance did not represent the proportion of higher costs in production fields.

List No. 57 continues to govern the local market.

WROUGHT PIPE

Price List No. 57. November, 1922.
Standard Butt-weld Pipe S/C

Size	Per 100 ft.		Gen. Wrot. Iron	
	Steel Blk.	Galv. Blk.	Galv. Blk.	Galv.
1/4 in.	6.00	8.00	.....	.....
1/2 in.	3.96	6.00	7.20	9.30
3/4 in.	3.96	6.00	7.20	9.30
1 in.	5.02	6.55	7.31	8.93
1 1/4 in.	6.10	7.82	8.86	10.70
1 1/2 in.	8.67	11.22	12.75	15.47
1 3/4 in.	11.73	15.18	17.25	20.93
2 in.	14.03	18.45	20.63	25.03
2 1/2 in.	18.87	24.42	27.75	33.67
3 in.	29.84	38.61	.....	.....
3 1/2 in.	39.02	50.49	.....	.....
4 in.	50.60	64.40	.....	.....
4 1/2 in.	59.95	76.30	.....	.....

Standard Lap-weld Pipe S/C

Size	Per 100 feet.			
	Steel Blk.	Galv. Blk.	Wrot. Blk.	Galv. Iron
2 in.	22.20	27.75	31.08	37.00
2 1/2 in.	32.76	41.54	46.80	56.16
3 in.	42.84	54.32	61.20	73.44
3 1/2 in.	51.52	65.32	73.60	88.32
4 in.	61.04	77.39	87.20	104.64
4 1/2 in.	71.12	90.17	1.07	1.27
5 in.	82.88	105.08	1.24	1.48
6 in.	1.08	1.36	1.61	1.92
7 in.	1.40	1.79	2.07	2.50
8 in.	1.48	1.88	2.18	2.63
8 1/2 in.	1.70	2.16	2.51	3.02
9 in.	2.07	2.62	2.97	3.59
10 in.	1.92	2.43	2.82	3.39
10 1/2 in.	2.47	3.13	3.63	4.37

SEASONAL QUIETNESS IN LEAD AND ZINC GOODS

Toronto.

In lead and zinc goods the primary metals entering into production are described as just holding their own, and quotations on the finished products listed below have remained unchanged. Cur-

rent trade is moderate, a condition usually evident at this time of the year, when activity is light on account of inventory and holiday factors. Some variation is still noted in lead sheet prices, the range being between 9 1/2 and 10 cent per pound. Other quotations remain at the following levels:

LEAD AND ZINC GOODS—

Lead pipe, list, per lb.	0 14
Lead waste pipe, list, per lb.	0 15
Do., over 8 in., list, per lb.	0 16
Lead pipe is subject to a discount of ten per cent.	
Lead traps and bends, less 15 per cent.	
Lead sheets, 4 to 6 lbs., sq. ft. in rolls, lb.	\$0.09 1/2—0.10.
Cut sheets, 1/4 to 3/4 lb. extra and cut sheets to size, 1c lb. extra.	
Solder wire, per lb.	0 21
Do., commercial, lb.	0 25
Do., strictly, lb.	0 23 1/2
Do., guaranteed, lb.	0 26 1/2
Do., wiping, lb.	0 23 1/2
Zinc sheets, per lb.	0 11 0 12

SATISFACTORY VOLUME OF TRADE IN RADIATORS

Toronto.

The recent recovery in pig iron prices serves to strengthen the market, for radiators and boilers, while maintaining the steady to firm undertone formerly recorded. Although current activity is moderate in extent, the prevailing price levels are unchanged, it being pointed out that no developments have occurred in basic elements. Referring to the volume of business recorded this season, one manufacturer stated that heating systems had generally experienced a brisk demand over a period of several months and satisfaction was expressed with the movement up to this time. How records compared with former seasons was something not yet available, although the general opinion was that the movement was considerably heavier because of the impetus afforded through the enlarged building activities. No changes are made in the following quotations:

RADIATORS—

Revised radiator list prices are for 1, 2, 3, 4 and 5-column radiators per square foot.
38 in., \$1; 32 in., \$1.10; 30 in., \$1.15; 26 in., \$1.20; 23 in., \$1.26; 22 in., \$1.30; 20 in., \$1.36; 18 in., \$1.40; 16 in., \$1.50; 14 in., \$1.55; 13 in., \$1.60.

Discount on 2, 3, 4 and 5 column standard sizes, 55 per cent. for water and 56 per cent. for steam.

Discount on 1-column standard size, and 2, 3, and 4-column hospital sizes 47 per cent for water and 48 per cent for steam.

Discounts on 1-column hospital size, water 33 per cent.; steam, 34 per cent.

Wall radiators—5 ft., \$1.15; 6 ft., \$1.10; 7 ft., \$1.05; 9 ft., \$1.05; 12 ft., \$1.05. Discount 52 per cent.

BOILERS—

Water:

Round 60 per cent. off list. Square 20 per cent. off list.

Steam:

Round, 25 per cent. off list; Square, 15 per cent. off list.

POSSIBLE CHANGE FORESHADOWED IN CLOSETS

Toronto.

That some price revisions may develop early in the New Year on closets is the general opinion prevalent in the trade this week. In this connection, however, it is stated that any movement towards easier levels would primarily depend upon manufacturers, as wholesalers

state that there is little profit in existing figures. However, another distributor expressed the opinion that it was quite possible quotations on closets would remain at existing levels, because it was felt that a steady market would be more conducive to active trade and restore confidence in future operations, rather than price fluctuations at this period.

CLOSET COMBINATIONS—		Each.
Closet, standard outfit, oak	26 00	
Do., with post hinge seat	26 20	
Do., mahogany Vitro or Pussyfoot with mahogany post hinge seat and cover	28 45	
Do., vitreous china, with oak post hinge seat and cover	28 45	
Do., vitreous china, with mahogany post hinge seat and cover	28 70	
Do., white Vitro or Pussyfoot, with oak post hinge seat and cover	28 45	
Do., white Vitro or Pussyfoot with mahogany post hinge, seat and cover	28 70	
Do., enamelled iron tank with oak post hinge seat and cover	28 45	
Do., enamelled iron tank with mahogany post hinge seat and cover	28 70	
Additions or reductions to above:		
Add for reverse trap bowl	1 50	
Add for syphon jet bowl	7 00	
For $\frac{3}{4}$ in. valve on supply pipe	1 50	
Deduct for supply pipe	0 60	
Deduct for floor flange and bolts	0 60	

CLOSET BOWLS—		
Washdown bowl with spud	10 60	
Reverse trap bowl, with spud	12 10	
Syphon jet bowl, with spud	17 00	
"Richelieu" bowl	10 50	

CLOSET TANKS, low down, Oak, Vitro or Pussyfoot tank, with fittings, less seat		
White Vitro or Pussyfoot tank with fittings, flush elbow and supply	15 65	
Vitreous china tank with fittings, flush elbow and supply	18 00	
Enamelled iron tank with fittings, flush elbow and supply	18 00	

CLOSET SEATS—		
Oak post hinge seat and cover	3 85	
Oak wood strip seat and cover	3 50	
Mahogany finish post hinge seat and cover	4 05	
Oak Richelieu seat and cover	3 50	

QUIET PERIOD IN ENAMELED WARE TRADE

Toronto.

There is now the customary quiet period in enameled ware trade, which is described as seasonal for the winter session. There is, however, a moderate amount of activity recorded, as some finishing work appears from time to time. No changes appear in quotations on these products, and the following are local list and discounts:

ENAMELED WARE—

ENAMELED Iron Baths, 3" roll rim, 4 ft., 4 ft. 6 in., 5 ft.		51 40
Do., 5 $\frac{1}{2}$ ft.		57 10
Lavatories—		
17x10" Apron F139 or P4045	15 30	
18x24" Apron F154 or P3845 or P3847	23 60	
18x21" Apron F169 or P4205	17 60	
18x21" Roll Rim, F197, F199 or P4655-6	15 40	
17x19" Roll Rim, F241 or P4345	12 60	
Sinks, Roll Rim, 16x24 in.	18 10	
Do., 18 x 30 in.	23 00	
Do., 20 x 30 in.	24 70	
Sinks, Flat Rim—	3 only 2 only 1 only	
16x24	\$7 60 \$7 70 \$7 80	
18x30	8 50 8 60 8 70	
20x30	9 70 9 80 9 90	
Above prices, list, less 33 1-3 per cent.		
All steel enamel baths, 4 and 4 $\frac{1}{2}$ ft.		\$14.00
Do., 5 ft.		15 00
Do., 5 $\frac{1}{2}$ ft.		16 75
Steel bath quotations are net		

RAW MATERIAL TREND AFFECTS CORRUGATED

Toronto.

Chief interest in the corrugated sheet market at this time of the year centres around the trend of raw materials. In

this respect it is pointed out that for a variety of reasons the supply of basic elements from a production viewpoint, has continued somewhat difficult to obtain. This condition is reflected to an extent in the undertone of the market as affecting the finished product, and although little activity is evident at this season, yet existing price levels remain steady. Manufacturers point out that on the basis of raw material costs, existing price levels are well down to replacement values and firmness in quotations is expected to prevail during the initial quarter of the New Year.

CORRUGATED SHEETS—		Per 100 Sq. Ft.
No. 28 gauge	6 50	
No. 26 gauge	7 00	
No. 26, U. S. gauge	8 00	
No. 24 gauge	9 00	
No. 22 gauge	11 00	
No. 20 gauge	12 50	
No. 18 gauge	16 50	
Less 10 per cent.		
Lighter than 24 gauge and wider than 27 inches, \$0.75 per square extra.		

NO CHANGES ANTICIPATED IN TROUGH AND PIPE

Toronto.

While trade in eavestrough and conductor piping and kindred lines is naturally of a very light nature at this time of the year, yet conditions are described as fairly good. More interest is evident in the development of raw materials which may have a bearing on the future trend of price levels on these finished goods. At the present time, however, it is stated that no changes are anticipated, and the following quotations remain unchanged:

TROUGH (EAVE)—		
O. G. Square Beam—		
Per 100 ft.		
8 inch	\$15 90	15 inch \$28 80
10 inch	17 70	18 inch 36 80
12 inch	21 20	
O. G. Round and Half Round		
8 inch	16 90	15 inch 29 80
10 inch	18 70	18 inch 37 80
12 inch	22 20	
Less 70 per cent.		
PIPE (CONDUCTOR)—		
Plain, round or corrugated.		
Per 100 ft. in 10 ft. lengths.		
2 in., in 10 ft. lengths, list	18 40	
3 in., in 10 ft. lengths, list	22 30	
4 in., in 10 ft. lengths, list	29 60	
5 in., in 10 ft. lengths, list	40 00	
6 in., in 10 ft. lengths, list	49 00	
Less 70 per cent.		

ELBOWS (CONDUCTOR)—		
2 inch, list	5 25	
3 inch, list	6 00	
4 inch, list	10 50	
5 inch, list	24 00	
6 inch, list	29 00	
Less 60 per cent.		

HOLIDAY SEASON IN IRON AND STEEL MARKET

Toronto.

Greater activity in the pig iron markets, both domestic and outside, coupled with the local advance in price of \$1.00 per ton, is taken to indicate that finished steel quotations are hardly likely to go any lower at present. It is pointed out that some lines of finished steel where price softness was formerly marked, now appear on a firmer basis due to improved booking operations in certain quarters. Another favorable aspect of the current market situation is the greater confidence which is being displayed

in obligations for material for forward delivery at prevailing price levels. Local business is described as good for this time of the year, in spite of the holiday season, inventory period and winter dullness. Prices are unchanged, as follows:

IRON AND STEEL—		
Mild steel bars, base	3 25	3 40
Mild steel bands, 3-16 base	3 75	3 90
Bar iron, base	3 25	3 40
Angle, iron base	3 35	3 50
Horseshoe iron		3 90
Tire steel		3 50
Spring steel	7 00	8 00
Sleigh shoe steel		3 40
Toe caulk iron		4 10
Hoop Steel		4 75
Norway iron		12 50
Crucible cast steel		28 00
Mining Drill steel		18 50
Cast-tool steel, high grade		30 00

BOOKING WELL AHEAD ON SHEETS AND PLATES

Toronto.

While current trade in sheets is described as moderately quiet at this period of the year, it is also pointed out that mills are still considerably behind on deliveries, and bookings are now being placed in some cases for March business. Quotations remain unchanged, both on domestic and primary markets, with prevailing market tendencies being closely watched. Prices on plates now show a narrower range, and the opinion has been expressed that the recent recovery in pig iron, although of slight extent, contains some indication of the developments in semi-finished steel products.

GALVANIZED SHEETS—

	Premier and Apollo	
10 $\frac{1}{4}$ oz.	6 65	
U. S. 28 base	6 25	
U. S. 26 base	5 95	
22 and 24	5 80	
18 and 20	5 65	
16	5 50	
12 and 14	5 35	
		Queen's Head
28 gauge base	7 15	
26	6 75	
24	6 45	
22	6 30	
		Fleur de Lis
28 gauge, base	6 90	
26	6 50	
24	6 20	
22	6 05	

An extra 40c. per 100 lbs. is charged for Keystone and Premier bands copper-bearing sheets.

An extra is now charged on galvanized sheets. 10 $\frac{1}{4}$ oz. and 28 ga., when shipped out in sheets 3 feet wide. The extra charged over prices shown in 20c. per 100 pounds.

BLUE ANNEALED SHEETS—

10 gauge, base	4 20
12 gauge	4 25
14 gauge	4 30
16 gauge	4 35

BLACK SHEETS—

18-20 gauge	4 90
22-24 gauge	4 95
26 gauge	5 00
28 gauge	5 10

A charge of 25c. per 100 lbs. is made for less than case lots. An extra 10c. per 100 lbs. is also charged on sheets 26 in. wide.

PLATES, CANADA—

Ordinary, 52 sheets	4 90
Dull, 60 sheets	5 00
Blued and oiled, boxes 52's	5 50
Do., boxes, 60's	5 60

WELSH CANADA PLATES—

Cold polished, 18 x 24, 52's	6 25
Cold polished, 18 x 24, 60's	6 50

PLATES, COKE TIN—

IC, 20 x 28, 112 sheets	12 45
IX, 20 x 28, 112 sheets	15 00
IX, 20 x 28, 56 sheets	8 50

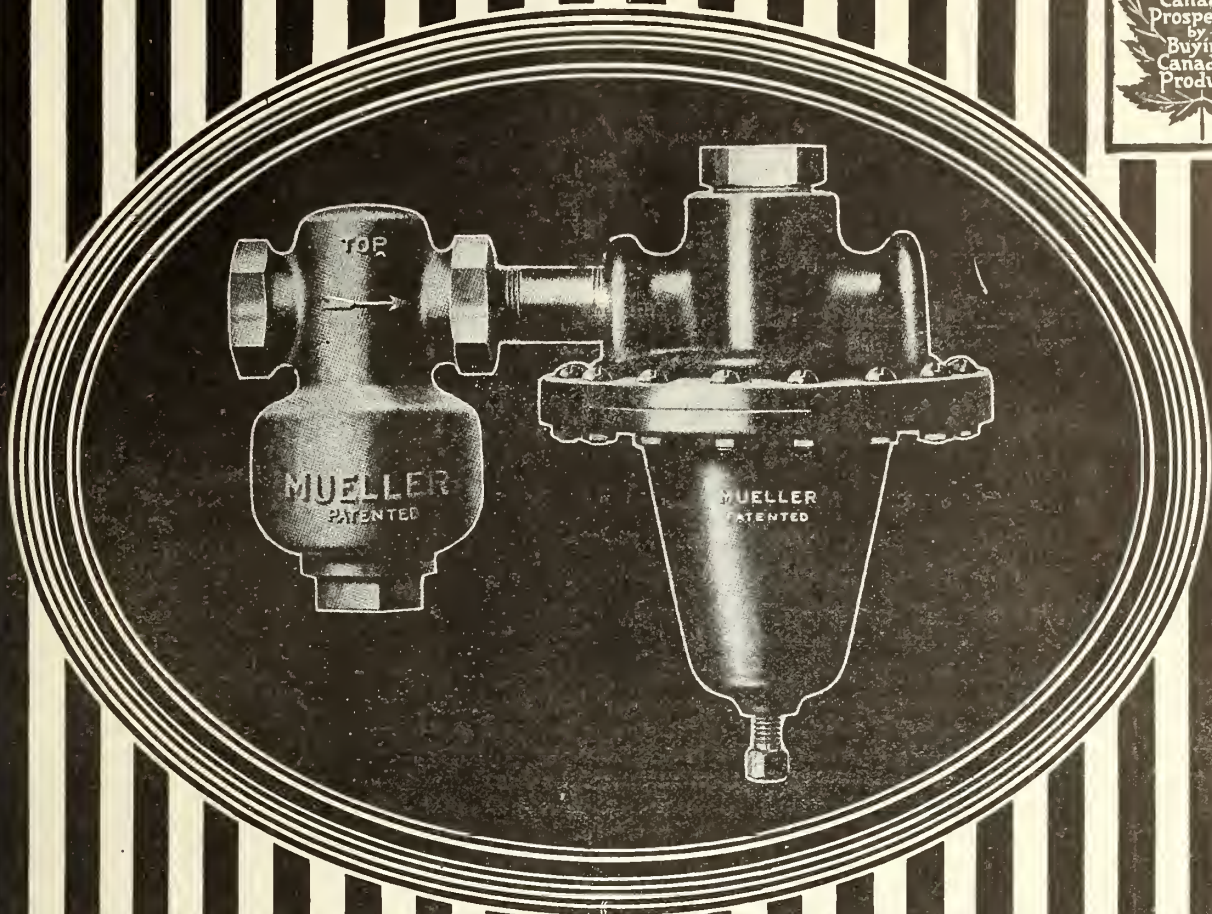
PLATES, CHARCOAL TIN—

IX, 20 x 28, 112 sheets	10 00
IXX, 20 x 28, 56 sheets	12 00

PLATES, TERNE—

IC, 14 x 20, 112 sheets	12 00
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(continued on page 36)



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Tell us what you wish to accomplish. Send us all the details of your job. Mueller experts will figure out your problems and send you free of charge full information as to the most efficient way to achieve your desired results.

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TORONTO MARKETS

(Continued from page 34)

FIRM UNDERTONE TO RANGE BOILERS

Toronto.

While trade in range boilers is seasonably quiet at this period, yet the undertone of the market continues quite firm. Current discounts remain unchanged, and it is stated by manufacturers and distributors that little change is anticipated for the opening weeks of the New Year at least. Prices remain unchanged at the following levels:

RANGE BOILERS—

Size.	List Price.
5-gallon	\$13 50
12 to 15 gallon	14 00
18-gallon	15 00
25-gallon	16 50
30-gallon	17 50
35-gallon	20 50
40-gallon	22 75
52-gallon	38 00
66-gallon	60 75
82-gallon	74 00
100-gallon	103 00
120-gallon	117 00
14-gallon	164 00
168-gallon	187 00
190-gallon	210 00
Discounts, Standard weight, 40 per cent.	
Extra heavy, 30 per cent.	

BETTER FEELING REMAINS IN INGOT METALS

Toronto.

There is a better feeling generally evident throughout the ingot metal group, but no great changes are recorded. There is little trading at this period, due to holidays and inventory needs. Prices have remained on a fairly steady basis, both in domestic and primary markets.

COPPER.—The undertone of copper is decidedly stronger, with the pendulum now commencing another upward swing. While domestic price levels are unchanged, as yet, it is noted that United States quotations are slightly higher, while any corresponding advance in London is tempered by exchange conditions.

TIN.—This metal continues on a strong basis. Tin prices are again showing an inclination to rise, both in London and the U. S. markets. Sentiment is described as much more cheerful. Domestic quotations remain fairly steady, local levels being given below.

LEAD.—The general tone of the market for lead is steady to firm, with no great developments expected at this time of the year, due to the holiday and inventory interest. While the aspect of this market has lately shown temporary periods of listlessness, with a slight wavering in primary quotations, the large and steady consumption that is going on is pointed out as maintaining a sound underlying position.

SPELTER.—This metal continues quiet with very little change in either prices or market conditions. The present tone is quiet, a condition not unusual at this season. London prices are reported as slightly firmer, but this trend is not reflected in domestic circles.

ANTIMONY.—The market undertone in antimony has remained dull. In the

absence of any trading to speak of, prices have remained unchanged, both on primary and domestic markets.

ALUMINUM.—Inquiries are stated to have been more numerous for aluminum, but it is noted that actual transactions are relatively light. Prices are firm and unchanged from previous levels:

INGOT METALS—

Copper	17 25
Tin	41 00
Lead	7 50
Spelter	9 50
Antimony	8 50
Aluminum	22 00

"KUMING TO LOGERHEDS OVER BIZNESS EXPANSION"

(Continued from page 17)

"Sum peeple think their all fired smart" she sez snappy like, "and don't half to half there heds red" lookin plum at my aubern lox.

"Its a little two thick for me," I sez in self defence, referrin to the lion of affluvia doap Bill had been handin me.

"What iz," she sez "youre hed?"

"Aw Vilet lay off, that's not fare," I remonstrats.

"Well its lite anyway," she comes back.

Vilet always gets me goin, I didn't know wheather she ment my hare or my hed. So I sed nothin.

"If you could only reed," she continjuse with a sort of pityin voice, "you might lern, for nobody can tell you nothin."

The swet begin to bust out on my foarhed for if theyres 1 thing I don't like its to have Vilet roast me.

You know I can reed Al only some of the words is strange thow the dictionery she give me helps a lot.

"If youd leeve the sportin page aloan and forget some of the things you done on the Polo Field and read some of this literatcoor about what your goin to do on the dispozle field, youd get some-where."

What Imc goin to do on the dispozle field! Thats just like Vilet she jest lays down the law as to what Imc goin to do, and befoar I no Imc doin it.

Thats the way it was with the dispozle feeld. I was skeered stiff Bill was goin to bite off more than he could chew and that he wood get all balled up with all those cheimbers and Annie Robic. But I begin to study and befoar long I becam a ferm bleever.

One day I come into the shop with a good one to spring.

"Ive found out who Annie Robic is," I sez to Vilet.

"Oh have you?" she sez, "who is she?"

"The Cheimber Made," and I laffed fit to split.

"Fresh," sez Vilet and tossed her hed.

Well Al we hev been bizzzy as beevers all threw the dull seenen workin on rurail work. Bill phoned he had the goods and all the folks is what Teddy Roosevelt used to say "Deelighted.

Yours till the next. Jerry.

PROFITABLE FIELD FOR PLUMBER

(Continued from page 16)

Flush-ometers

One place was found where the flush-ometers were not operating well on account of low pressure. This factory uses reclaim water and only the top floor of the building was affected. However, they are raising a storage tank on the roof to overcome this difficulty.

General Sanitation

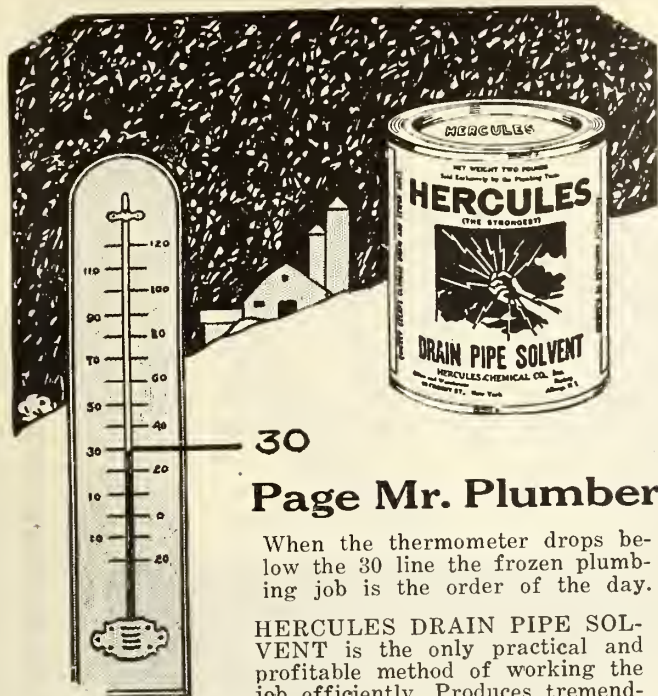
Dark lavatories are usually dirty lavatories. Too much cannot be said about lots of light. If stairways and halls are painted white around the corners people will hesitate to spit there. Some factories have their stair landings in this way and also have cuspidors at convenient intervals. It is remarkable what a change it is from a tobacco juice corner sometimes found.

Many Plumbing Defects

To give you some idea of what has been accomplished by our division of the department of public health in Toronto in connection with improving the condition of our factories, public buildings, apartment houses, etc., from a sanitary and hygienic standpoint, I may tell you that last year we dealt with 165 buildings with defective drainage, and 653 buildings which had defective plumbing work, all of which have been made sanitary, either by repairs or reconstruction. In addition to these, we have the ventilation improved in 80 factories; urinals, sinks, basins and shower baths to the number of 175 installed, drinking bubblers installed in 72 cases; gases and chemicals controlled in 98, and trade dusts wholly or partly controlled in 159. Now this will give a general idea of our part of the work.

I may say that it is my opinion that all sanitary engineers should co-operate with the city health authorities in an endeavor to have all plumbing work, and drainage not only installed in first class manner but they should do all they can to see that it is kept in the best possible state, as the public places a lot of confidence in them, and depend largely upon them to see that their health is not affected from bad odors arising from leaky work and filthy fixtures. They should also remember that the inspector is not there to hinder them, but only to see that their work has been done right.

Remembering what our object should be, prevention rather than cure, I may say right here that any person undertaking to do plumbing and drainage work without the necessary training and qualifications is like a person performing a serious operation without the proper training in surgical work.



30

Page Mr. Plumber

When the thermometer drops below the 30 line the frozen plumbing job is the order of the day.

HERCULES DRAIN PIPE SOLVENT is the only practical and profitable method of working the job efficiently. Produces tremendous heat—thaws all the way down.

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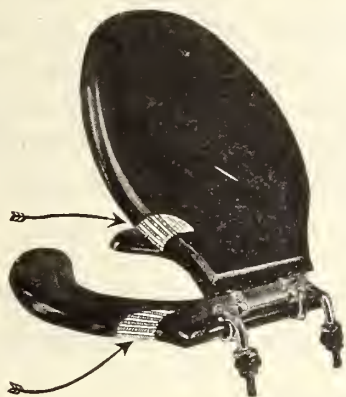
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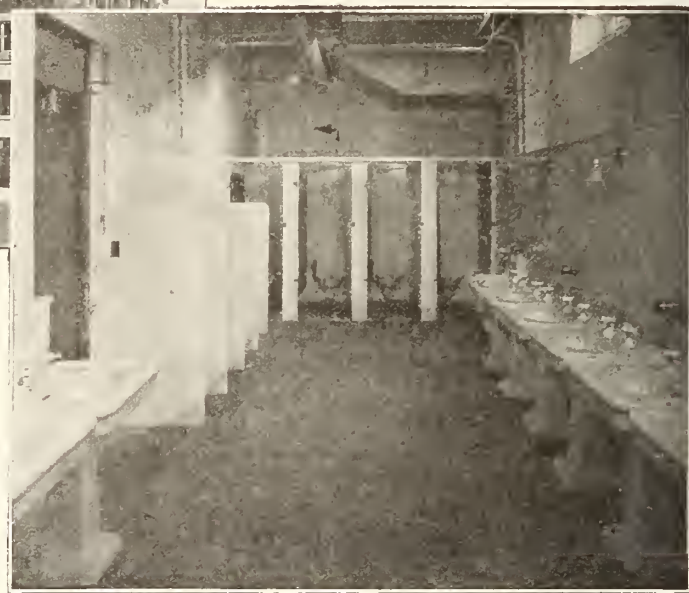
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Hundreds of Sanitary Engineers to-day are carrying equipment for which they have no further need, yet many others could use this same equipment to good advantage and would be glad to buy at a fair price, if they but knew of it.

How to get buyer and seller together—that's the question. The answer is—SANITARY ENGINEER classified advertising service. Thousands of Sanitary Engineers throughout the country read the classified advertisements every issue. That's why they produce results surely and quickly.

If you want to buy, sell or exchange equipment.

If you want to sell or exchange your store.

If you want to buy a store.

If you are looking for a location.

If you need a competent journeyman.

If you are seeking a position.

In fact if you wish to buy, sell or exchange anything used in a plumbing and steamfitting shop or for any reason desire to quickly get in touch with other Sanitary Engineers, use SANITARY ENGINEER'S classified advertising service. The charge is ridiculously low—\$1.50 for twenty-five words, 5 cents for each additional word.

**Look For The Classified Column
on Page 46**

**AIR LINE SYSTEMS**

C. A. Dunham Co., Ltd., Toronto.
United Brassfounders & Engineers, Ltd., Manchester, Eng.

ALUMINUM CASTINGS

Fittings, Limited, Oshawa.
Canada Metal Co., Ltd., Toronto.

AIR VALVES

Beaton & Caldwell Mfg. Co., New Britain, Conn.
W. H. Cunningham & Hill, Ltd., Toronto.
C. A. Dunham Co., Ltd., Toronto.
Empire Mfg. Co., Ltd., London and Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
J. H. Williams & Co., Brooklyn, New York.
United Brassfounders & Engineers, Ltd., Manchester, Eng.
Wallaceburg Brass & Iron Mfg. Co., Ltd., Wallaceburg, Ont.
Wolverine Ltd., Toronto, Ont.

BATHROOM FITTINGS

Canada Metal Co., Ltd., Toronto.
Gendron Mfg. Co., Toronto.

BENDING SPRINGS

W. H. Cunningham & Hill, Ltd., Toronto.

BOILERS, STEAM OR HOT WATER

Gurney Foundry Co., Limited, Toronto.
Lord & Burnham Co., Ltd., Toronto.
Spencer Heater Co., Ltd., Toronto, Ont.
Warden King, Ltd., Montreal.

BOILER FEED REGULATORS

Empire Mfg. Co., London and Toronto.
C. A. Dunham Co., Ltd., Toronto.
Grant E. Cole Co., 23 River Street, Toronto.

BOILER STANDS

Fittings, Limited, Oshawa.

BOLTS, EYE

J. H. Williams & Co., Brooklyn, N. Y.

BOLTS AND NUTS

Fittings Limited, Oshawa.

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Canadian Brass Co., Ltd., Galt, Ont.
Canada Metal Co., Ltd., Toronto.
C. A. Dunham Co., Ltd., Toronto.
Empire Mfg. Co., Ltd., London and Toronto.
Fittings, Limited, Oshawa.
Galt Brass Co., Limited, Galt.
Kerr Engine Co., Ltd., Walkerville.
James Morrison Brass Mfg. Co., Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
Standard Sanitary Mfg. Co., Ltd., Toronto.
Hamilton.
United Brassfounders and Engineers, Ltd., Manchester, Eng.
Wallaceburg Brass & Iron Mfg. Co., Ltd., Wallaceburg, Ont.
Wolverine Ltd., Toronto, Ont.
W. H. Cunningham & Hill, Ltd., Toronto.

BRASS PIPE AND TUBE

Canada Metal Co., Ltd., Toronto.
Empire Mfg. Co., Ltd., London and Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
United Brassfounders & Engineers Ltd., Manchester, Eng.
Wolverine, Ltd., Toronto, Ont.

CASTINGS

Canada Metal Co., Ltd., Toronto.
Fittings, Limited, Oshawa.

CELLAR DRAINERS

Galt Brass Co., Limited, Galt.
Empire Mfg. Co., Ltd., London and Toronto.
James Morrison Brass Mfg. Co., Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
Standard Sanitary Mfg. Co., Ltd., Toronto, and Hamilton.

CIRCULATORS

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CHAINS

Fittings, Limited, Oshawa.
J. H. Williams & Co., Brooklyn, N. Y.

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Empire Mfg. Co., Ltd., London and Toronto.
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H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
Standard Sanitary Mfg. Co., Ltd., Toronto.
Hamilton.

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The Westco Pumps, Limited, Toronto.
23 River Street, Toronto.

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Empire Mfg. Co., Ltd., London and Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.

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Fittings Limited, Oshawa.

DAMPER REGULATORS

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Empire Mfg. Co., Ltd., London and Toronto.
Fittings Limited, Oshawa.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
Standard Sanitary Mfg. Co., Ltd., Toronto.
Hamilton.
United Brassfounders & Engineers, Ltd., Manchester, Eng.
Warden King, Ltd., Montreal.

DRAIN PIPE SOLVENT

W. H. Cunningham & Hill, Ltd., Toronto.
Hercules Chemical Co., Inc., New York City.

DRINKING FOUNTAINS

Canada Metal Co., Ltd., Toronto
Empire Mfg. Co., Ltd., London and Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
Standard Sanitary Mfg. Co., Ltd., Toronto.
Hamilton.

DROP FORGINGS

J. H. Williams & Co., Brooklyn, N.Y.

EJECTORS, STEAM

Kerr Engine Co., Walkerville.
United Brassfounders & Engineers, Ltd., Manchester, Eng.

ENAMELWARE

Amherst Foundry Co., Ltd., Amherst, N.S.
Canada Metal Co., Ltd., Toronto.
Empire Mfg. Co., Ltd., London and Toronto.
Galt Brass Co., Limited, Galt.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
Standard Sanitary Mfg. Co., Ltd., Toronto.
Hamilton.

Port Hope Sanitary Mfg. Co., Ltd., Port Hope.
Standard Sanitary Mfg. Co., Ltd., Toronto.

ELECTRIC PUMPING MACHINERY

Empire Mfg. Co., Ltd., London and Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.

EXPANSION TANKS

Toronto Hardware Mfg. Co., Ltd., Toronto.

FITTINGS

Canada Metal Co., Ltd., Toronto
Empire Mfg. Co., Ltd., London and Toronto.
Fittings Limited, Oshawa.
James Morrison Brass Mfg. Co., Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
Standard Sanitary Mfg. Co., Ltd., Toronto.
Hamilton.
United Brassfounders & Engineers, Ltd., Manchester, Eng.
Warden King, Ltd., Montreal.

FLUSHOMETERS

Canada Metal Co., Ltd., Toronto.
Empire Mfg. Co., Ltd., London and Toronto.
Galt Brass Co., Ltd., Galt.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
Standard Sanitary Mfg. Co., Ltd., Toronto.
Hamilton.
Wolverine Ltd., Toronto, Ont.

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Beaton & Caldwell Mfg. Co., New Britain, Conn.
W. H. Cunningham & Hill, Ltd., Toronto.
Fittings, Limited, Oshawa.
Wolverine Ltd., Toronto, Ont.
Empire Mfg. Co., Ltd., London and Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.

FURNACES

Gurney Foundry Co., Limited, Toronto.
Warden King, Ltd., Montreal.
Spencer Heater Co., Ltd., Toronto.
Hamilton Stove & Heater Co., Hamilton.
Burrow, Stewart & Milne, Hamilton.
Hall-Zryd, Hespeler, Ont.
Vulcan Co., London, Ont.

GASOLINE ENGINES

Empire Mfg. Co., Ltd., London and Toronto.

GAS WATER HEATERS

Bastian-Morley, Limited, Toronto.
Empire Mfg. Co., Ltd., London and Toronto.
James Morrison Brass Mfg., Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
Standard Sanitary Mfg. Co., Ltd., Toronto.
Hamilton.

W. H. Cunningham & Hill, Ltd., Toronto.

GALVANIZING

Fittings, Limited, Oshawa.

HEAT GENERATORS

Galt Brass Co., Galt, Ont.
Grant E. Cole Co., 23 River Street, Toronto.

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C. A. Dunham Co., Ltd., Toronto.

HEATERS

Canada Metal Co., Ltd., Toronto.
Grant E. Cole Co., 23 River Street, Toronto.
Lord & Burnham Co., Ltd., Toronto.
Warden King, Ltd., Montreal and Toronto.
W. H. Cunningham & Hill, Ltd., Toronto.

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JAPANNING

Fittings, Limited, Oshawa.

KEROSENE WATER HEATERS

W. H. Cunningham & Hill, Ltd., Toronto.

LAUNDRY TUBS

The Canada Metal Co., Ltd., Toronto.
Standard Sanitary Mfg. Co., Ltd., Toronto.
Hamilton.

LEAD

Canada Metal Co., Ltd., Toronto.
Empire Mfg. Co., Ltd., London and Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
Standard Sanitary Mfg. Co., Ltd., Toronto,
Hamilton.

MACHINISTS' TOOLS

J. H. Williams & Co., Brooklyn, N. Y.

MALLEABLE IRON CASTINGS

Gurney Foundry Co., Limited, Toronto.
Fittings, Limited, Oshawa.

MACHINE BOLTS AND NUTS

Fittings, Limited, Oshawa.

MIXING VALVES

Canada Metal Co., Ltd., Toronto.
Empire Mfg. Co., Ltd., London and Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
Standard Sanitary Mfg. Co., Ltd., Toronto.
Hamilton.
Port Hope Sanitary Mfg. Co., Ltd., Port Hope.

PACKING

Grant E. Cole Co., 23 River Street, Toronto.

RADIATOR FOOT RESTS

Empire Mfg. Co., Ltd., London and Toronto.
Wolverine Ltd., Toronto, Ont.
W. H. Cunningham & Hill, Ltd., Toronto.

PACKLESS RADIATOR VALVES

Kerr Engine Co., Walkerville.
C. A. Dunham Co., Ltd., Toronto, Ont.

PIPE AND RADIATOR HANGERS

Beaton & Caldwell Mfg. Co., New Britain, Conn.
W. H. Cunningham & Hill, Ltd., Toronto.
Healy-Ruff Company, Minneapolis, Minn.

PIPE, BLACK AND GALVANIZED

Canada Metal Co., Ltd., Toronto.
Canadian Tube and Iron Co., Ltd., Montreal.
Empire Mfg. Co., Ltd., London and Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
Standard Sanitary Mfg. Co., Ltd., Toronto.
Hamilton.

PIPE CLEANER

Chamberlain Desolve Co., Ltd., Toronto.
Empire Mfg. Co., Ltd., London and Toronto.
Hercules Chemical Co., Inc., New York City.
Wolverine, Ltd., Toronto, Ont.
W. H. Cunningham & Hill, Ltd., Toronto.

PIPE JOINT COMPOUNDS

Wolverine, Ltd., Toronto, Ont.
Empire Mfg. Co., Ltd., London and Toronto.
W. H. Cunningham & Hill, Ltd., Toronto.

BEAVER BRAND Porcelain Enamel Ware

— *Your Guarantee of Quality* —

Beaver Brand Enamelware by its ability to meet the highest demands for service under all conditions, has established itself in the confidence of the public to such an extent that each month witnesses an ever-increasing demand for products of Beaver manufacture.

Amherst Foundry Co., Limited

General Offices and Factory: Amherst, N.S.

Agents:

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MANITOBA AND NORTHWEST:
E. B. Plewes,
197 Princess St., Winnipeg

KERR VALVES

**For Steam and
Hot Water Heating**

Kerr Radiator Valves need no introduction. They have been setting a standard of quality and efficiency in connection with Hot Water and Steam heating for many years, and continue as recognized leaders in this line of valves.

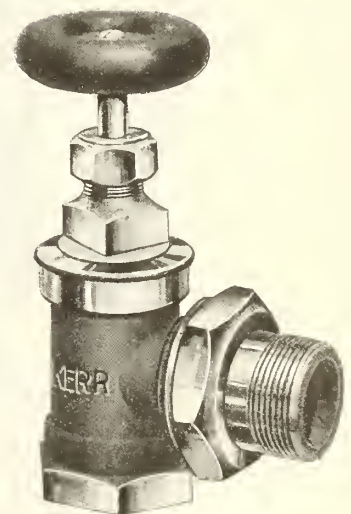
Kerr Valves on your Radiator is a stamp of quality on the job.

Ask your jobber for KERR valves. He likely has them in stock.

Kerr N. P. Union Elbows register with either the Hot Water or the Steam Valve, and are of same standard high quality.



No. 34



No. 39

The **KERR ENGINE COMPANY**
LIMITED

WALKERVILLE Valve Manufacturers

ONTARIO

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Anthes Foundry Co., Toronto and Winnipeg.
Canada Metal Co., Ltd., Toronto.
Empire Mfg. Co., Ltd., London and Toronto.
Fittings, Limited, Oshawa.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
Standard Sanitary Mfg. Co., Ltd., Toronto.
Hamilton.

Toronto Hardware Mfg., Co., Toronto.
Warden King, Ltd., Montreal.

PIPE THREADING TOOLS AND MACHINERY

Borden Canadian Co., Toronto.
A. B. Jardine & Co., Hespeler.
W. H. Cunningham & Hill, Ltd., Toronto.

PIPE WRENCHES

J. H. Williams Co., Brooklyn, New York.
W. H. Cunningham & Hill, Ltd., Toronto.

PLUMBERS' TOOLS

J. H. Williams & Co., Montreal, Que.
W. H. Cunningham & Hill, Ltd., Toronto.

PNEUMATIC WATER SUPPLY TANKS

Empire Mfg. Co., London and Toronto.

PORCELAIN WARE

Canada Metal Co., Ltd., Toronto.
Empire Mfg. Co., London and Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.

PUMPS

W. H. Cunningham & Hill, Ltd., Toronto.
Grant E. Cole Co., 23 River Street, Toronto.
H. Mueller Mfg. Co., Limited.
The Westco Pumps Limited, Toronto.
United Brassfounders & Engineers, Ltd.,
Manchester, Eng.

PUMPING SYSTEMS, AUTOMATIC

Canada Metal Co., Ltd., Toronto.
H. Mueller Mfg. Co., Limited.
The Westco Pumps, Limited, Toronto.
Beaton & Cadwell Mfg. Co., New Britain, Conn.

RADIATORS

Gurney Foundry Co., Limited, Toronto.
Lord & Burnham Co., Ltd., Toronto.
Warden King Ltd., Montreal.

RADIATOR HANGERS

Healy Ruff Company.

RADIATOR NIPPLES

Fittings, Limited, Oshawa.

RADIATOR TRAPS (STEAM)

C. A. Dunham Co., Ltd., Toronto.
Grant E. Cole Co., 23 River Street, Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
United Brassfounders & Engineers Ltd., Man-
chester, Eng.

RIVETS

Fittings, Limited, Oshawa.

RANGE BOILERS

Standard Sanitary Mfg. Co., Ltd., Toronto.
Hamilton.
The Canadian John Wood Mfg. Co., Toronto.
Toronto Hardware Mfg. Co., Toronto.

REDUCING PRESSURE VALVES

Grant E. Cole Co., 23 River Street, Toronto.
C. A. Dunham Co., Ltd., Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
United Brassfounders & Engineers, Ltd.,
Manchester, Eng.

RETURN TILTING TRAPS

Grant E. Cole Co., 23 River Street, Toronto.

ROOF FLANGES AND FLASHINGS

Canada Metal Co., Ltd., Toronto.
Empire Mfg. Co., London and Toronto.
Standard Sanitary Mfg. Co., Ltd., Toronto.
Hamilton.

SEPTIC TANK VALVES AND SYPHONS

Anthes Foundry Co., Ltd., Toronto.
Empire Mfg. Co., London and Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.

SINK BRACKETS

Fittings, Limited, Oshawa.

SOCKETS, WIRE ROPE

J. H. Williams & Co., Montreal, Que.

SOLDER

Canada Metal Co., Ltd., Toronto.

STEAM SPECIALTIES

Grant E. Cole Co., 23 River Street, Toronto.
C. A. Dunham Co., Ltd., Toronto.
Empire Mfg. Co., London and Toronto.
Kerr Engine Co., Walkerville, Ont.
United Brassfounders & Engineers, Ltd.,
Manchester, Eng.

STEAM TRAPS

Grant E. Cole Co., 23 River Street, Toronto.
C. A. Dunham Co., Ltd., Toronto.
United Brassfounders & Engineers Ltd.,
Manchester, Eng.

STOVES

Gurney Foundry Co., Limited, Toronto.

STOVES, GAS AND COAL

Gurney Foundry Co., Ltd., Toronto.

SWIVELS, HOOK

J. H. Williams & Co., Brooklyn, N.Y.

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The Canadian John Wood Mfg. Co., Toronto.

TANK BULBS, (RUBBER)

Canada Metal Co., Ltd., Toronto.
W. H. Cunningham & Hill, Ltd., Toronto.

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J. H. Williams & Co., Brooklyn, N.Y.

TOOLS

Wolverine, Ltd., Toronto.
Empire Mfg. Co., London and Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
Standard Sanitary Mfg. Co., Ltd., Toronto.
Hamilton.
J. H. Williams & Co., Brooklyn, N.Y.
W. H. Cunningham & Hill, Ltd., Toronto.

TORCHES

W. H. Cunningham & Hill, Ltd., Toronto.

UNIONS

Canada Metal Co., Ltd., Toronto.
Empire Mfg. Co., London and Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
United Brassfounders & Engineers, Ltd.,
Manchester, Eng.

VAPOR HEATING SYSTEMS

C. A. Dunham Co., Ltd., Toronto.

VICES, CHAIN, CLAMP, MOUNT

J. H. Williams & Co., Brooklyn, N.Y.

VITRO TANKS

Galt Brass Co., Ltd., Galt.

VACUUM SYSTEMS OF HEATING

C. A. Dunham Co., Ltd., Toronto.

VALVES

Empire Mfg. Co., London and Toronto.
Jenkins Bros., Ltd., Montreal, Que.
The Kerr Engine Co., Walkerville, Ont.
United Brassfounders & Engineers Ltd.,
Manchester, Eng.

WATER SUPPLY SYSTEMS

Empire Mfg. Co., London and Toronto.
Standard Sanitary Mfg. Co., Ltd., Toronto.
Hamilton.
The Westco Pumps, Limited, Toronto.

WASHERS

Canada Metal Co., Ltd., Toronto.
W. H. Cunningham & Hill, Ltd., Toronto.

WASHING MACHINES

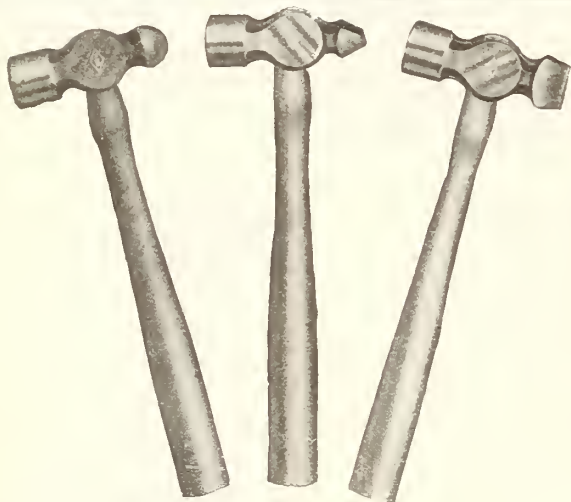
Gurney Foundry Co., Ltd., Toronto.

WRENCHES, SET, DROP FORGED,**ENGINEERS, SOCKET AND CHAIN PIPE**

J. H. Williams & Co., Brooklyn, N.Y.

WROUGHT COUPLINGS AND NIPPLES

Canada Metal Co., Ltd., Toronto.
Fittings, Ltd., Oshawa.



Made in



Canada

**Better Tools Make
Better Workmen--**

And there are no better tools than WILLIAMS' Hammers. All kinds; all sizes. Catalog on request.

J. H. WILLIAMS & Co., Limited

"The Drop-Forging People."

77 Thorold Road - St. Catharines, Ont.



These machines are used in many of the largest industrial plants returning condensation from Heating and Steam process work under various conditions.

It will pay Heating Contractors to give more attention to the utility of our return traps.

They save coal, raise efficiency and for this reason are steadily superseding Boiler Feed and Vacuum Pumps.

Send us your next prospect, also send us your trouble jobs of heating or other steam work.

J. E. FARRELL, Director of Sales
210 Galley Ave. Toronto

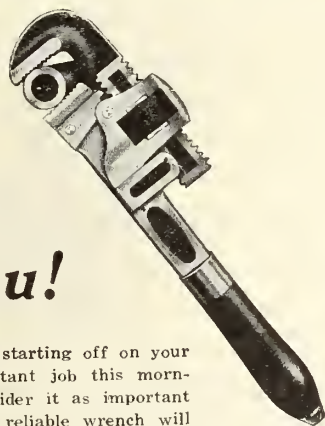


FITTINGS LIMITED

OSHAWA, CAN.
MANUFACTURERS OF

"DIAMOND" PIPE FITTINGS

**Take a
TRIMO
with you!**



Probably you are starting off on your way to an important job this morning. If you consider it as important as you should, a reliable wrench will not be overlooked as one of your necessities.

And a "Trimo" is what you need. The Wrench with the Steel Frames, Nut Guards, and insertable jaw in handle. Made with Wood Handles in 6, 8", 10", 14" sizes.

Made with Steel Handles in all sizes.

Trimont Manufacturing Company
55-77 Amory Street
Roxbury (Boston), Mass., U.S.A.

CANADIAN REPRESENTATIVE:
GEO. P. FRASER, 28 Temple Ave.
TORONTO.

THE TRADE

*Is Respectfully Cautioned
to specify*

**RIVETED
RANGE BOILERS**

Made by the old reliable

**TORONTO HARDWARE
MFG. CO., LIMITED**

Who Paid for It?

In an authoritative magazine we read:

"A certain house eight years ago did an annual business of \$3,000,000 and the cost of selling the goods amounted to 8 per cent. Good advertising has since then increased their annual business to \$15,000,000 and the cost of selling, including advertising expenditures, has fallen to 5 per cent. The salesmen are earning much more money, and the advertising has enabled them to do it, because while their commissions are smaller their sales are made easier and are more than trebled in volume."



Who paid for the advertising?

Not the consumer, for the price of the goods was less than it had been without advertising.

Not the manufacturer, because his total selling cost was 3 per cent. less.

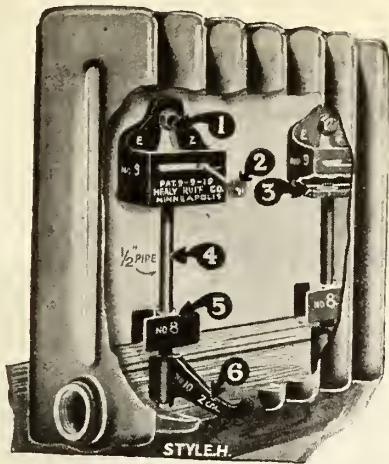
Not the salesmen, because they made more money.

Who did pay, then? The same inexhaustible source upon which we draw for the cost of all progress—Old Man Waste.

The most expensive institution we have to-day is the unsuccessful

competitor — the business that drags along for years, eating up rent and salaries, and traveling expenses, trying to get orders that someone else can get and execute better and cheaper.

It is cruel, perhaps, but true that the sooner such concerns disappear, the better it is for the public. The advertising of their more aggressive and better-organized competitors brings the end quicker. And it is the money saved by putting a stop to hordes of these petty, wasteful non-successes, which pays for the advertising and cuts down the cost of the goods you buy.



TRY IT! The E-Z Radiator Hanger

You'll only have to try it once because it always works satisfactorily and there is a demand for more all the time.

It hangs radiators securely and is a real device to give a neat and complete finish to the interior of every home.

The E. Z. Radiator Hanger has one Bolt, Invisible Washer, Horizontal Adjustment, Vertical Adjustment, Baseboard Adjustment. Made for Wall and Column Radiators.

IMMEDIATE SHIPMENTS FROM LARGE STOCK.

MADE IN CANADA

HEALY-RUFF CO.

MINNEAPOLIS, MINN.

J. H. Leonard, Tribune Bldg., Winnipeg.
D. G. Brison, Standard Bank Building,
Vancouver.
A. Walker, 514 McLean Bldg., Calgary.
E. T. Flanigan, 229 College St., Tor-
onto.

Eager Coombs & Co., Ltd., Halifax,
Can.
Shaver Bros., Booth Bldg., Ottawa.
S. T. Hadley, 304 University St.,
Montreal.



"Style R."

They Always Call Again

The merchant may be sure when he sells an article bearing this mark:



that his customers will call again. In every Gendron product there is:

Conscientious Manufacture and Fair Price, and for the dealer a splendid margin of profit.



The Gendron Mfg. Co. Ltd.
Duchess Street - Toronto



A Real Leader

The Marvel, extra heavy and electric welded, is as efficient in operation as it is simple to install.

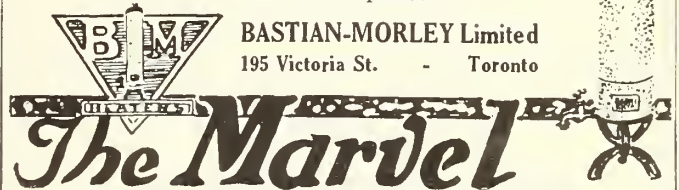
It is a combined range boiler and gas water heater doing away entirely with the old side-arm combination.

It holds and consumes every unit of heat, thereby needing less gas; the special Marvel burner produces a green-blue flame that heats the entire capacity of the tank in a very short time. It is silent, odorless and safe.

It is sold only through plumbers and yields a generous profit.

Write for prices

BASTIAN-MORLEY Limited
195 Victoria St. - Toronto



ATTENTION! Contract Shops, Stores, Employers, Clerks, Mechanics, etc.

Our new HOME STUDY course in BUSINESS ADMINISTRATION is now ready for the trade. It teaches you the most modern methods of Business.

Learn to extend your Markets; enlarge your Business; Learn to adjust all the business combinations to the limit. We build on top of your present Ability and give you a business training equal to the best.

We teach you in your own home or office, Clear, Personal, Direct. An Hour a Day will prepare you into a highly specialized Executive. Make ready for the next great prosperous Building wave.

Full information free.

COURSES IN MODERN BUSINESS ADMINISTRATION

COURSES IN SHEET METAL DESIGN AND PATTERN DRAFTING

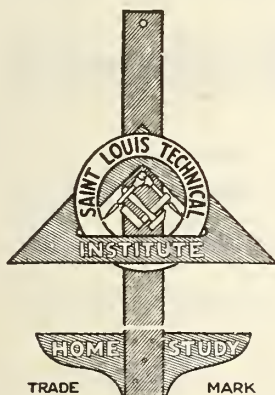
COURSES IN HEATING AND VENTILATING ENGINEERING

ST. LOUIS TECHNICAL INSTITUTE

4543 Clayton Ave.

O. W. Kothe, Prin.

St. Louis, Mo.



Good Plumbing Calls For JENKINS VALVES



Fig. 106
Jenkins Brass Globe Valve

What makes Jenkins Valves so much better than ordinary valves is—

The high-grade Brass, Iron or Cast Steel from which they are made.

The scientific way in which they are constructed.

The scrupulous care with which every valve is tested for service before leaving the factory.

Jenkins Valves are **DEPENDABLE** even under unusually severe conditions.

Plumbing and Heating Contractors should write for interesting literature describing the complete Jenkins line. It will be mailed on request.

JENKINS BROS., LIMITED

103 St. Remi St., Montreal

TORONTO VANCOUVER

European Branch: 6 Great Queen St., Kingsway, London, W.C. 2, England

Jenkins Valves
SINCE 1864

The Classified Column.

2 Cents a word or figure

Minimum \$1.00.

ADDRESSING MACHINE FOR SALE—WE HAVE A COMPLETE Belknap Addressing Equipment for sale. This equipment is still in use in our Subscription Department and is in excellent working order. We have placed an attractive price on this outfit, and would advise manufacturers or merchants having a mailing list to let us tell you how it will save you money. We will give a guarantee as to the proper working condition of this equipment. The MacLean Publishing Co., Ltd., 143 University Avenue, Toronto, Ontario.

TAYLOR SAFES FOR SALE—RARE OPPORTUNITY TO secure a safe at small cost. They are in splendid condition. Inside dimensions and prices are as follows: 15" deep, 2 ft. 6" wide, 3 ft. 11½" high, fitted with built-in compartment. Price \$250.00. 18" deep, 2 ft. 8" wide, 4 ft. 5" high, fitted with steel compartment. Price \$200.00. Apply Box No. 701, Sanitary Engineer, Toronto.

SALESMAN—WITH COMPLETE KNOWLEDGE OF PLUMBING, Heating and Sheet Metal goods, also road experiences and good connections with the trade, in the Maritime Provinces, wishes to connect with good firm. For particulars, write Box 931, Sanitary Engineer, Toronto.



**CASH
IN
ON
THIS
COLUMN**

Want to sell your Business?

Want a partner with Capital?

Want some good used equipment?

Sanitary Engineer's

CLASSIFIED COLUMN

WILL HELP SOLVE

YOUR PROBLEM—

SEND ALONG THAT AD TODAY

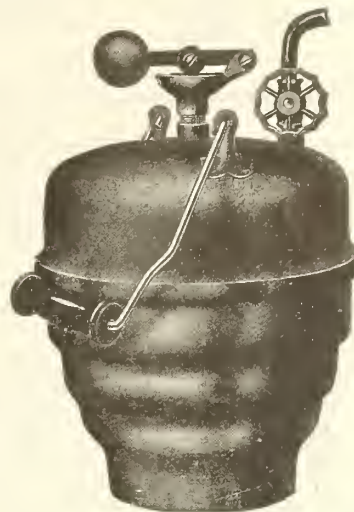
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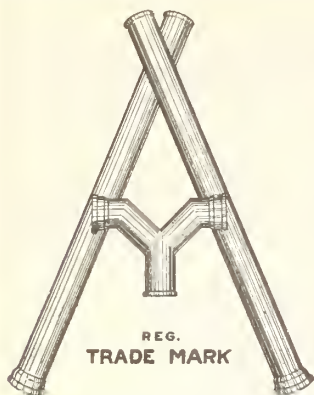
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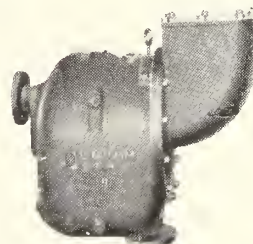
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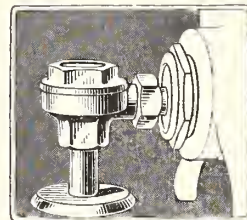


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*Ask Your
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ITR

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Galt - Ontario



**NO TROUBLE
TANK**

Sanitary Engineer

Plumber and Steamfitter of Canada

Vol. XVII.

PUBLICATION OFFICE, TORONTO, JANUARY 15, 1923

No. 2



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The special composition tank illustrated is rust-proof and its glossy finish will last for years. When used with the heavy type wash down bowl the effect is pleasing to the eye. Interior fittings are of best red metal. This attractive combination operates smoothly and quietly.

Ask your jobber or write
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"PUSSYFOOT"

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The New Patent Ballcock

with which it is fitted is pronounced by all Sanitary Engineers to be the greatest improvement ever made in Tank Fittings.

The Silent, Rapid and Simple Operation is commented on everywhere.

It is shipped to you, each part securely packed in case as here shown, and all anxiety caused by possibility of damage is eliminated.

Furthermore, on the LID of every Tank, you will find our Guarantee Label which gives you full protection.

OUR GUARANTEE

This Pussyfoot Tank is guaranteed to the extent that no matter how many years it has been in use, if a fault of material or workmanship shows, we will replace with a new tank. The defective tank must be sent to us for inspection.

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Factory - Hamilton - Montreal - Winnipeg - Vancouver



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OUR NO. 20 "Quietus" Syphon Jet closet as its name implies is of the so-called "silent" type. It operates so quietly that its action when flushed cannot be heard outside of its immediate environment; yet it possesses the same unhesitating strong action for which all Canadian Vitreous closets are noted.

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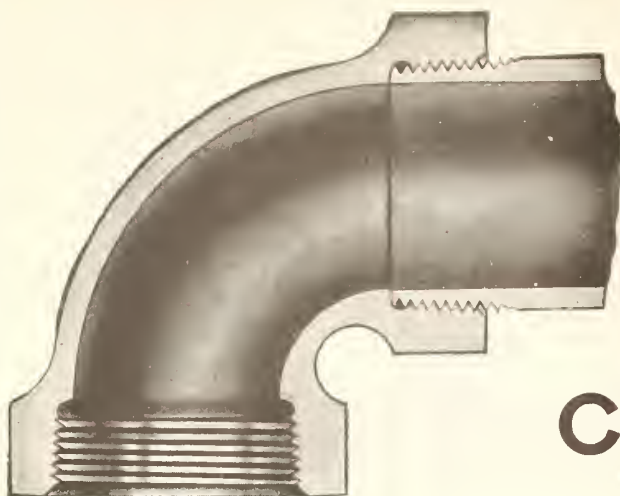
They not only break up vegetable and animal matter, but consume also deadly germs and paper, and but for them, the septic tank as we know it would not be possible.

By the way—right now is the time to line up your rural prospects for spring installations of sanitary systems. Very soon spring will be here; in the interval, you can do a lot of real constructive selling and be ready to get to work at the first sign of warm weather.

Be sure to specify Anthes Soil Pipe. This splendid, sturdy, long-lived pipe, so superior to ordinary piping.

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ARE MADE WITH A SHOULDER AND ARE THE SAME INSIDE DIAMETER AS WROUGHT PIPE. THE PIPE SCREWS IN UP TO THE SHOULDER MAKING A CONTINUOUS PASSAGE, LEAVING NO POCKETS IN WHICH SOLID MATTER CAN LODGE.

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we have been able only to visualize in the past.

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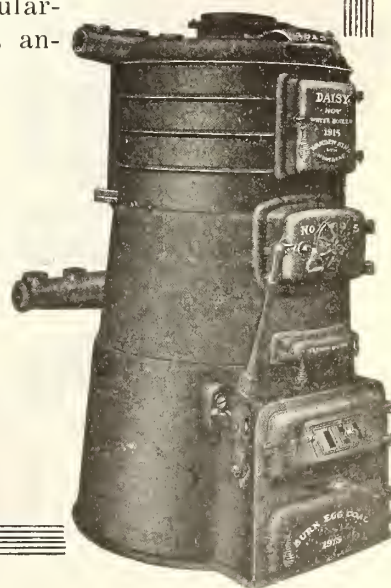
A satisfied customer tells his friend or neighbor of its advantages, and more sales result. We have benefited through this ever increasing prestige. Have you?

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Send us your specifications.

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CHERRY BLOSSOM LAND

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Note the built-in stove. This illustration is drawn from a photograph of recent date.



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**Simpler
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New**

**Little
Giant
Pipe Wrench**

YOU aren't really buying wrenches, you are after service.

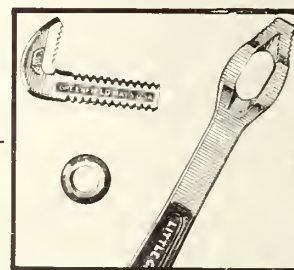
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Your supply house has it or can get it for you.



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Practically Indestructible.
(Note teeth on both sides of jaw.)



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Pipe Tools, Twist Drills, Milling Cutters.

SANITARY ENGINEER

PLUMBER AND STEAMFITTER OF CANADA

ESTABLISHED 1907

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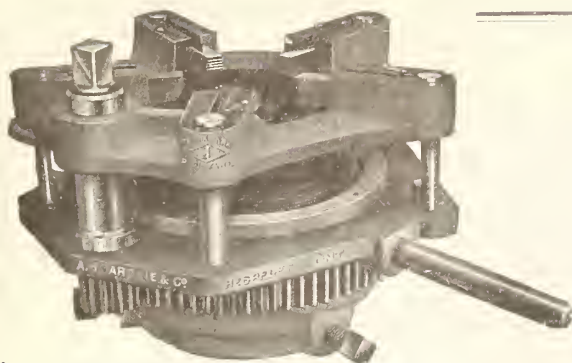
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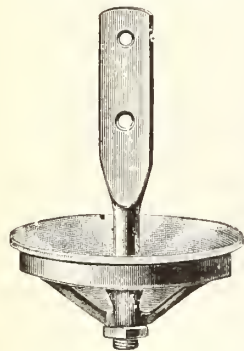
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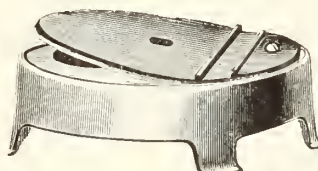
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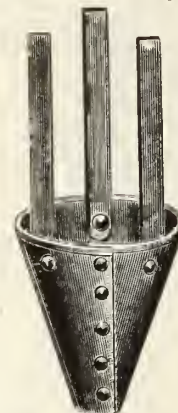
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Plumber and Steamfitter of Canada

Published
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TORONTO, JANUARY 15, 1923

No. 2

How Plumbers Handle the Receipt Tax

Some Questions Raised by Plumbers Concerning New Tax Imposition Are Answered by Taxation Official—Cash Register Slips and Counter Checks Not Affected if They Do Not Bear Words Implying a Receipt

SOME enquiries have come to Sanitary Engineer from plumbers in various parts of the country concerning the working of the Receipt Tax, in effect since January 1, and some enquiries have elicited information of assistance, from tax officials and from other plumbers.

A study of the regulations would make it appear that there is really little justification for any difficulty, because this tax has little effect upon the average plumber insofar as cash sales are concerned and it occasions little annoyance in connection with the accounting.

One plumber stated to Sanitary Engineer that only a small proportion of the cash sales are for amounts over \$10 and that seldom then is a receipt insisted upon by the customer. Where it is asked for, a cash register slip is given as sufficient evidence of the sale. Care is being taken that the cash register slip is not so worded as to constitute a receipt. In connection with accounts, the customer requires a receipted statement, and the plumber is of opinion that it is good business methods to give such a statement irrespective of the petty annoyance of placing a two cent stamp on the statement. It makes necessary the carrying of a supply of stamps, but this is already necessary due to the cheque and draft tax.

Another stated that little difficulty was being experienced, and that the law eliminating the ordinary cash register slip or counter check providing it was not in the form of a receipt, made it much less onerous. This was according to the English law where the Receipt Tax was said to work with little friction. He stated that he was just in the act of forwarding a protest concerning stamping of cash register slips and counter checks, when word came to him that these were being exempted from stamp tax. He stated that a good many voucher checks were used in payment of accounts and these apparently did not require any additional stamping.

In discussing the new Receipt Tax with an out of town plumber it was pointed out that the tax had not had any effect on charge accounts as yet, but the firm had arrived at two decisions with regard to counter sales and c.o.d. purchases. In respect to sales over the counter, steps are now being taken to revise the wording on the sales receipt. The former words to the effect that, a sum of one dollar will be paid to any person not receiving a receipt for their purchase, is being changed to "The sum of one dollar will be given to any person not receiving a printed slip such as this showing the amount of their purchase."

In this way, he pointed out that the words "paid" and "receipt" were eliminated. The former plate in the cash register has been removed and a new one is being made. Referring to

the sales slips, it was stated that these were just being initialed by the salesmen, and the word "paid" was no longer being placed thereon. With respect to c.o.d. purchases, he stated that he anticipated no difficulty in this direction, as the parcel was merely handed over by the delivery man upon payment of the sum called for, and the possession of the parcel and sales slip by the customer was usually accepted as prima facie evidence that the goods had been paid for.

A wholesale firm where a retail department is maintained, referred to the receipt tax as bearing upon their sales over the counter in the following manner:

"We have the regular sales slip, which is made out by the salesman showing the goods purchased and the amount of same. Formerly this was initialed by the salesman and the word 'paid' stamped thereon, as well as the date. We have now adopted the plan of merely initialing all sales slips, and omitting the word 'paid.' This affects all slips whether for amounts over ten dollars, or not. Should a customer ask specially to have the word 'paid' stamped or written on the sales slip, as formerly, then we point out that under the receipt tax regulation this will entail affixing a two-cent stamp—if the amount is over ten dollars."

Another plumber pointed out that there appears to be some misunderstanding as to whether the customer or the plumber had to pay the tax. This firm also had adopted the method of merely initialing sales slips, the word "receipt," or "paid," having been eliminated. However, when a customer desired a "paid" slip and the amount purchased was over ten dollars and therefore taxable according to the meaning of the act, they have requested the payment of the tax on the part of the customer. In this case it was pointed out by Sanitary Engineer that this was not in accordance with the regulations, as the party issuing the receipt was expected to pay the tax.

It would appear, from a consensus of those plumbers interviewed by Sanitary Engineer, that the general practice adopted has been to merely sign the sales slips, and to eliminate the word "paid," which was formerly placed thereon. In respect to cash register receipts, in most cases arrangements are being made to strike off the word "paid" or "receipt" and substitute the words "amount purchased," together with the date.

Some rulings have been received on certain points put before the Department of Customs by Sanitary Engineer. These are as follows:

1. "Where a customer makes purchases and counter sales slips are prepared separately for each purchase and each slip marked "paid" individually, the total payment being made at

(Continued on page 34)

Favor Proposal to Amend Sales Tax

Manufacturers Who Have Studied the Difficulties of Present Sales Tax and the Application of Proposed Amendment, Strongly Favor the Change—Manufacturer With Fixed Resale Prices and Discounts Points Out Some Difficulties

EDITOR'S NOTE:—As taxation will again be taken up very shortly by Parliament in connection with the Budget for the next year, it is interesting to note that there is considerable support among manufacturers and wholesalers for the proposed amendment to the Sales Tax as outlined in former issues of Sanitary Engineer. This proposed amendment provided that sales from manufacturers to wholesalers, holding wholesale tax licenses for resale, be exempt from Sales tax. Secondly that wholesalers holding tax licenses collect the full $4\frac{1}{2}$ per cent. tax from retailers or consumers. Thirdly that manufacturers continue to collect $4\frac{1}{2}$ per cent. sales tax from retailers and consumers. Fourthly that the collection of $4\frac{1}{2}$ per cent. tax by wholesalers and manufacturers be compulsory with no option of absorbing a part or all of it. The stand taken by a number of manufacturers is outlined in the following:

F. S. LAYTHE, assistant-treasurer Butterfield & Co., Rock Island, Que., refers to the proposed amendment as follows:—"We are of the opinion, based on our own experience and study, also following closely the arguments which have been presented regarding the present Sales Tax, that the amendment proposed in your letter should be adopted. We are inclined to believe that the acceptance of this amendment by the Department and the change made in the Act will simplify the collection of the tax and prove more workable all around."

E. G. Bennett, assistant treasurer Crane Ltd., Montreal, is of the opinion that the proposed amendment is very much to be recommended. This firm are manufacturers and also jobbers selling to both wholesalers and retailers and consumers. This firm in company with others has had difficulty meeting the present requirements of the Act as regards the segregating and charging of the two different rates of tax as between goods of its own manufacture and those that the firm sells wholesale, the situation being the more complicated on goods sold through various branches throughout the country. Mr. Bennett was of the opinion that the amendment would not only relieve firms such as his of much difficulty, but would give a more equitable measure of taxation to business in general. It was thought to be highly desirable to distract the public mind with taxation as little as possible.

"We do recommend the suggested amendment," said Mr. Bennett, "and sincerely hope it will go through. Apart from this we favor a small tax on all sales as being the least felt and most economical to all concerned, but this apparently does not meet with general approval. We would like to emphasise the fourth clause in the suggested amendment, as we feel this to be vital to the equitable application of the tax."

D. R. Fowler, sales manager, Canada

Foundries & Forgings, Ltd., Brockville, Ont., states: "We strongly favor the proposed amendment for the reasons you have outlined. The effect of the amendment no doubt will be to have the tax passed on as the government intended and there will certainly be a better feeling among manufacturers, wholesalers and retailers as a result."

A. P. Beaupre, president, Canadian Veneering Co., Acton Vale, Que., favors the amendment in the belief that it will greatly help manufacturers who are exporting. "In our case we export about 90% of our products all over the world," said Mr. Beaupre. "When exporting to the U. S. we have to pay a duty of 45% and as the declaration of fair market value for goods sold in Canada for home consumption includes the $2\frac{1}{4}$ % tax we pay duty on the said $2\frac{1}{4}$ %, thereby increasing cost of exportation, whereas under the amended regulations there would be a saving for exporters."

G. B. Greene, gen. manager, General Supply Co. of Canada, Ottawa, is strongly in favor of the proposed amendment. "We believe this to be the only possible means of entirely eliminating the injustice now being done the Canadian wholesaler, and trust your efforts to have the Act amended in this manner will be fully successful. Otherwise we are convinced that the wholesalers of Canada will be forced out of business by an unbearable tax contrary to the fundamental principle of the Sales Tax Act."

Geo. W. Reed & Co. Ltd., Montreal, spoken for by R. W. McIntosh, secretary-treasurer, heartily approves of the proposed amendment.

F. B. Combier, general manager, The Wm. Rogers Mfg. Co. Ltd., Niagara Falls, Ont., favors the proposed amendment and outlines his views on the subject as follows:—

1. "We find the present tax very confusing as to administration. It leads to duplication of tax which results in unwarranted hardships on some consumers

and purchasers. 2. We favor the proposed amendment because we believe it is a generally accepted fundamental that it is cheaper to collect, clearer to administer and altogether preferable that any tax be collected at one source only or on one type of transaction only, instead of the same tax being sub-classified and collected from various sources to presumably the same total on the one article of merchandise. Naturally and rightly the consumer pays for all costs including taxes on merchandise he consumes. It is therefore advisable that taxes be collected as close to the ultimate consumer's purchase as possible because the further back in the channels of distribution a tax is placed, the more overhead, interest on investment and profits on the transaction will accrue on the tax money."

F. Moore, vice-president and general manager, Benjamin, Moore & Co., Toronto, states, "We have given a good deal of thought to the present method of collecting tax and the proposed amendment. You have pointed out the real difficulties of the situation under the Act as it is at present. We think the amendment is the best way out of the present difficulty and the government will lose nothing financially by the change."

A. J. Oliver, secretary, R. McDougall Co. Ltd., Galt, Ont., states: "It looks to us as if this proposed amendment would simplify matters very much and in our opinion this should be laid before the government in as strong a manner as possible. The only other thing which could be much better than this would be a general Turnover Tax."

Some interesting points concerning the application of the tax where there is a suggested re-sale price on the article are brought out by A. T. Channel, president Channel Ltd., Toronto, in the following:

"In studying your suggested amendments and the manner in which you present your argument, we do not feel that it is applicable to a product sold on the basis that our products are sold; that is, with a set price to the consumer, a set discount to the retailer and an additional set discount to the wholesale trade. We do not view these set discounts too large and extravagant, nor do we hear opinions expressed to that effect. On the contrary we have heard them expressed as fair and reasonable and the proper discounts for articles of this nature."

(Continued on page 34)

Fifteen New Customers in a Week

Maritime Plumber Seeking Ways to Stimulate Trade, Sent Out Two Hundred Letters—Received Two Jobbing Orders in Two Days and in Week Had Fifteen New Customers—How Plumbers Can Sell Filtration Systems

IS THERE a place for the small fry in the plumbing sphere?" was a query put to L. M. Brown, of St. John, N. B., manufacturers' agent in plumbing supplies, who has just returned from a swing through the maritime provinces.

"Yes," said Mr. Brown, "there is certainly a place for the small plumber. For instance, he has a place in jobbing and in small contracts. The chief trouble with the small plumber is that he does not get out after the business. He waits until it comes to him. And he waits and waits.

"In my latest trip through the maritime provinces I met a number of master plumbers, some of them big and some of them medium and others just little fellows in this game. Some of the little fellows were complaining about business. I asked one of them what he was doing to stimulate trade. He said he wasn't doing anything in that line at all. There he was with an abundance of competition and things in a natural depression and he was just sitting still and hoping for the best.

"I told him to get busy—show some life, and he would get results. I told him to send some personal letters around to builders and to owners of houses soliciting trade in both jobbing and contracting. He sent out two hundred in a few days. He did not even have letterheads and had to get a thousand printed. Also the same number of envelopes. He hired a girl to typewrite the letters.

"Two days after he sent out the first letter, this plumber received two jobbing orders from people he had never done business with. And in a week he had fifteen new customers on his list. He had made enough to offset the cost of the letters in a week, and indications are he is in for some good jobbing business henceforth if he keeps sending out the personal letters. If he drops by the wayside again no doubt he will lose what he won," said Mr. Brown.

An ingenious plan for acquiring business in the selling of filtration systems in the maritime provinces was discovered by Sanitary Engineer.

Circular letters were being mailed in follow-up order to firms manufacturing soft beverages, associations and colleges owning swimming pools, large hotels, and cities and towns with water systems. The first letter deals briefly on the excellent points of a filtration system, making but minor reference to the particular systems. In the second letter, the good qualities of this particular sys-

tem are impressed on the prospective buyer. The third letter is a personal letter written by the type-writer and not the mimeograph. This letter makes an attractive offer to the prospective buyer, and mentions the fact that installation of the system and operation will be cheaper in the maritime provinces than in other parts owing to the excellence of the maritime gravel. This gravel is absolutely necessary for the system, and the gravel found in the maritime provinces has been found to be superior to the gravel found elsewhere as far as

the installation and operation of these filtration systems is concerned. In addition to pointing out that the use of the gravel will cause cheaper installation and operations, as well as efficient operation, it states that owing to impure water in many parts of the maritime provinces owing to defective water systems, of cities and towns, filtration systems are a boon to health.

Letters have also been addressed to health boards in the various cities and towns where there are swimming pools
(Continued on page 19)

"If I Were a Journeyman Plumber"

* * *
(Suggested by K. B. A.)

I would work whole-heartedly for the boss and be unflinchingly loyal to him or else, if I must holler and grouch, I'd holler my fool head off, but I'd quit my job first.

* * *

I would be on time, or ahead of it, and ready to start the day at starting time.

* * *

I would keep my kit supplied with the little things I would likely need during the day.

* * *

I would see that my appearance was tidy and that my movements were active, especially whilst I was in contact with the public.

* * *

I would realize, that whilst the boss employed and paid me, yet that I, as he, was a servant of the public, and I would serve the public on that basis.

* * *

I would not be a clock watcher, because sometimes an extra hard problem might take extra time that would not warrant being charged.

* * *

I would read and study trade subjects so as to familiarize myself with the various trade practices.

* * *

I would realize that whilst the pay per hour was the same for the thinking journeyman as the indifferent one, yet the prospects of steady employment would be greater for the former as would the chances of advancement be better.

* * *

I would be ambitious enough to qualify as a foreman and later on to become the proprietor of a business, realizing that my training would the better fit me to become a business man and an employer when the opportunity came my way.

* * *

And I would keep in practice on the golden rule about doing unto others by putting myself in the boss's place and the customer's place as well as taking just my side of things.



“Having What Bill Calls Seazonal Windy Displaze”

(With apologies to Ring W. Lardner)
By

MAJOR L.L. ANTHERS.

MANAGING DIRECTOR-ANTHERS FOUNDRY LTD.

Tarraboome, Jan. 15, 1923.

Dear Al. :—

THE Festuv Seezon has came and went. I do enjy Xmas. Theirs somethin about it that sturs the deps of a mans sole. You get so soft-harted that you want to give away everythin you got and don nead—You know me Al. It makes you feel poeticle two. Leastwize it gets me that way. Hears a little thing that Ive thunk out miself. Ime goin to spring it on Vilet for little doz she suspkt. that theirs a genyus in our middst. Lissen in Al, its good.

In Tarraboom at Xmas time
And snow drops fill the air,
I love to sing and dance and play,
And raize Old Ned fer fair.

The Xmas. treez are all lit up,
Even as you and me,
And weer all hapy, even the pup,
As far as eye can sea.

The big fat turkies disappear
The gravy gurgles down,
And when I no that you are neer,
Ime the hapiest guy in town.

Oh happy time when bells do ring,
And skates are on the ice,
And you and I together sing
O gee but aint it nice.

And so I go from yere to yere,
Till Crismus comes agen,
And wish you all the festuv cheer,
To which I say Amen.

The buty of it is that theirs no alushion to shop. Wen I rite poitry Ime aible to keep miself abuv wurdly things. Thats the trew spirut of poitry.

Well as I sed abuv, Xmas has came and went. We are having what Bill calls seezonal windy displaize.

We had a slay party out to the bush and Bill cut down a big Nevergreen tree under my direc-tns. It was a bute! We brawt it in and put it in the middel of the shop windy. Then we went to the drigoods stoar & bawt a no. of roles of cotting batting.

We spred it all over the flore of the windy just like sure enuff snow. Vilet bawt a big starr and some little Sandy Claws witch she hung on the top of the tree and on the end of the branchus. Then their was a lot of this here sillver festune stuff witch we skalloped all over the tree like Spanich moss. Bleeve you me Al it was the regler cats whiskrs.

After the nital trimmins we put up a lot of small nickle & annamal tilet fxtrs. hung like presence and if we didnt have the klassiest Xmas tree in town you got annuther guess comin.

The peeples crowded round that windy like it was a free S. S. entertanement.

Wile we didnt maik a fortun outta wat we solde offn the tree, still tho favorable comnts. what was passt maid you feal that it wernt loves laibor lost as Bobby Burns or sum other poett sez.

Wen Bill 1st sprang this seezonal windy dressin stuf I werent none 2 kean.

“Wot you goin to dress the windy like when the fishin seazon comes in?” I asts him. Plumbin and fishin is a long way apart. You mite put a bathtub fulla water in the windy and have a lottuv empty hooch btls. floteing round in it to remind the fishin craft that fishin aint wot it usta bee. As fur the huntin seazon the only thing I can think on conec-tered with plumbin is you cld. hev a shower bath

all clozed in with a curtain and a dummy on the outside with a gun peekin in, with a sine which sez "Its a bare."

"Aw you dont get me atall" sez Bill, registerin discust. I dont meen to pull off no bum jokes like your talkin ov but to dress the windy appropriate to the seezon.

"Oh I sea," I sez, "Snowballs in the winter, goluf balls in the Spring, moth balls in the summer and puffballs in the Fall."

"Yessn a high ball fer leep yr.", snortered Bill. "Jest lend me yr. eer for a minnit and ile enliten yr. dence ignerance."

"You kin hev my noze 2 if you like" I shot back at him with vimm.

"My cars got a tale-lite," retortured Bill with the heir of a witt. Bill can get reel snappy at timse.

"What I meen by seezonal displaize," sez Bill, "is makin youre show-windy attractov at sikilological times."

"Come again," I sez, "Wots this Siki stuff—the big smoke from Bene-gal what licked Karpenteer, or Cupids side-kick wot sez to the well 'How well I look?'"

"Neethur," snortered Bill with distain. "Wot Ime tryin to tell you is, theirs a time and a plaice fer everythin—thats wot 'Sikilological meens."

"Oh I get youse now," I sez. "The time & the plaice & the gurl," & I looks over twords Vilet for approval. But I didnt get none. She was lookin at me in a board sort of way, witch maid me feal oncomfortabel.

"You kin leeve the gurl out uv it," snips Bill, so I sets back to lissen.

"Its nachural that befoar winter comes," per-seeds Bill, "peepuls begins to think how theys goin to keep theirselves warm, so thens the time to displai youre heetin goods. When theirs no new jobs

in site, fix up youre windy to maik the peepuls with Noze Ark fxtrs. think theys gettin behind the times and neads an overhall & sofoarth & etc."

"I sees," I retorz, but as the huntin seezon was jest a few dais off & I was booked up fer a shootin party, my mind was on the shootin & not on windy dressin. So to maik a short story long I sez "Go to it—put it over!"

Bill looked hurt at my lack of enthusiasm, but I knew heed go threw with it if heed maid up his mind 2.

Bill went out back to the shop wile I pertended I seen some 1 acrost the road ide fergot to tell somethin an so lit out. I new Vilet was layin fer me an discided digression was the better part of valler.

Wen I got bak from the shootin trip I seen a bunch of hicks standin in front of the store. My 1st thawt was fire! & my hart beet fast lest Vilet was saif and sound. But wen I gits near the windy I was flabby-gasted. Their was Joe Hicks our slickest jurneyman puttin the finish on 1 of the ancientest bunch of bathroom fixtrs. you ever set ize on. We got a long front to our



"When I got back from the shootin' trip I seen a bunch of hicks standin' in front of the store. My 1st thawt was fire! and my hart beet fast lest Vilet was saif and sound."

shop & the biggest windy in town. Some 1 hed put up a wooden pertition dividin the windy in 2, and 1 side had nothin in it wile the other as afore-sed was bean fixed up by Joe Hicks. I coulda sworne that the fixtrs. had come outa 1 of them Egiptian Faro graves you reed so much about in the paipers. I shure thot some 1 had gone dippy, an wen I bust inter the dore I sez "Hoonells gone bug around hear?"

"It must be yerself," came a laidys clear cut icy voice, "judgin by yr. languidge & yr. manners."

Of coarse it was Vilet. An the frosty look she give me! Oh gee!

(Continued on page 26)

Cost to Plumbers of Labor Turnover

What Makes Up Labor Turnover Costs—What Wages Are Paid for—Breaking In New Men Is An Expense—Spoiled Materials, Repairs, Etc., Run Up the Cost of Labor Turnover

Written for Sanitary Engineer by G. W. Hafner

ACCORDING to reports made to the Industrial Bureau of the Merchants Association by 42 concerns representing 15 different industries and employing a total average force of 42,375 workers, the average yearly rate of labor shift or "turnover" in 1921, for skilled and semi-skilled workers in one city was 125 per cent., and for unskilled workers 265 per cent.

Out of a total of 7,362 full year workers, in 5 mercantile establishments investigated by the Bureau of Labor Statistics for the years 1917-1918 837 were discharged, 3,972 were laid off and 10,432 left voluntarily—a total of 15,241 or a labor turnover of 207 per cent. Of this 207 per cent. 141.7 per cent. consisted of voluntary leaving.

What Wages are Paid for

There are a multitude of reasons why men leave one place of employment to go to another, some of which are legitimate, some imaginary and some foolish. The most prominent reasons, especially during rush of business, are wages and hours.

Workmen have nothing to sell except their services. Custom has welded us to the thought that wages are compensation for time spent; but this is a peculiarly mischievous idea. When we come to analyze the subject, we find that most wages are paid for work done. There are few, if any, jobs in which wages are paid for bodily presence only. The real unit is the unit of production; of things accomplished; of tasks finished. And these, it will be found, are not convertible into units of time, even though we pretend to do it.

The daily unit is necessary, of course, because men recuperate by sleep once a day. If it were possible to do otherwise, we would have men who would want to work 24 hours and then rest 48. It is also cut into weekly units because of the sensible and scriptural injunction which affects the majority of workers.

What Makes up Labor Turnover Costs

Now the heart of this problem of labor turnover is its cost to the business man, and many proprietors and managers are extremely anxious to know what such costs consist of and in what ways they may reduce such losses.

The costs of labor turnover to the merchant or manufacturer are of many kinds. These may be summarized as follows:

1. Breaking in new men.
2. Spoiled materials.

3. Repairs.

4. Accidents.

In attempting to get some clear conception of this subject, it is highly important that due consideration be given to each of these four kinds of labor turnover costs.

Breaking in New Men

Every time a new worker is taken on, there is an expense of hiring. Time must be given by someone to the task of interviewing the applicant, deciding upon his rate of pay, securing his name and address for pay roll purposes, writing his name on the payroll, introducing him to the working force.

But the expense does not stop there. To a greater or less extent the new workman must be trained. The foreman and the workers already on the job must get him started, and show him how the work is to be done. They must continue to teach or train him for a more or less long period of time, depending on the nature of the work he is set to do, until he has attained to the normal or average. This consumes time, and time in this sense is actual money. The time lost by foremen and the old employees in giving the new man instructions, as well as the reduced output of the new worker, is a large item of expense.

Spoiled Materials

Everyone knows that the human animal must be given time to adjust himself to his surroundings. A new place to work, strange faces and unfamiliar environments all have a tendency to create a "sensitiveness" on the part of the worker, which in the majority of cases tends to prevent the man from appearing at his best, and thus detracts from his ability to do good work. He is more or less awkward and distracted until the newness and strangeness wear off.

This means that in the handling of the various kinds of merchandise or materials carried by the individual business man, there will be for some time a greater degree of spoilage than usual. Any merchant or manufacturer can apply this for himself. If he will watch the next new man he sets to work in his place of business, he will have his eyes opened to the loss involved in spoiled goods.

Trucks, wagons and equipment of all kinds stand idle, while waiting for new hands to replace those who have left. In like manner, all this equipment is more than ordinarily idle while the

new workers are becoming familiar with their tasks.

But more serious than this is the fact that, during the time these green hands are learning, there is wear and tear on equipment. This means extra depreciation and the necessity for larger repairs and renewals.

Also, there is a larger use of gas, oil and the like in operating trucks; greater use of power, lubrication, etc., in the handling of machinery and equipment, due to the fact that this equipment must be run longer in order to produce a normal output.

Accidents

As has been said, it takes time for new employees to co-ordinate or adjust themselves to new work and surroundings. On this account they are more likely to get hurt. The frequency of accidents is always greater among new men than among old workers.

This means, to say the least, that the business man is subjected to a great many inconveniences. It requires him to take a greater care in supervising accident prevention. It compels him to pay higher rates for accident insurance. The time lost in giving first aid to the injured amounts to considerable in the course of a year. Hence, in breaking in new men, the manufacturer or merchant is put to a large expense in terms of increased accidents.

Figuring the Cost

Having determined upon the main items which make up the cost of labor turnover, how are such costs to be figured in terms of dollars and cents?

The rule for calculating the cost of turnover is difficult to apply, yet it will serve as a practical guide for those who are interested in working out such costs. The rule is: First find out the total amount spent for breaking in all men on a given job, both those who stay only a little while, and those who remain until they become normally efficient, taking into account as far as possible all the items of cost already enumerated; second, deduct from this total the difference between the standard wage and the lower wage paid to workers during the learning period, since the lower wage paid partly makes up the cost of breaking them in; third, divide the amount thus obtained by the number of workers involved, and the result will be the average cost of turnover for that particular job.

If you wish to find the annual cost of turnover for that particular job, multi-

ply the average cost of turnover just found by the total number of persons hired for the job during the year.

The book on "Labor Turnover, Loyalty and Output" by Colvin, says that "the actual cost of hiring and firing a man may run from \$20.00 to \$2,000.00, depending on the kind of a man and the importance of the job." From this any business man may gain some sort of clear idea of the staggering drain on his own business caused by labor turnover.

What Men Work For

But the time necessary to work out labor turnover costs of this kind may be worse than wasted, unless the business man is thereby led to realize that he should take some steps to discover methods of holding men. Any plan to be successful must have an unpretentious democratic basis. Feudal systems that dispense largess and expect corresponding loyalty usually get disappointment and a cynical view of human nature for their reward.

Others who do things—usually kind things—for their employees, have gratitude and appreciation of the acts more in accordance with the manner in which the things are done than for the spirit which prompts them.

The real problem is how to adapt our methods to human nature as it is, and always will be, yesterday, to-day and forever. All that we can be sure of is that there must be genuine sympathy and understanding on our part of the other fellow's point of view, if we are to create that spirit of loyalty in him that is the foundation stone of efficient service.

Loyalty—that's the word to think about, both in your attitude toward the worker and in the worker's attitude toward you. No man really works for wages. What he puts in his time for is money. He must have money, because the world is organized that way. He cannot raise sheep for clothing on the roof of his flat. He must get money somewhere for the things which he cannot make for himself. Necessity compels men to get money, honestly or otherwise.

But when we find a man really working, it is because of a deep sense of loyalty. Why did men go to the war, volunteer or drafted, without a regret? Because there was something, intangibly spiritual, in their enthusiasm for and loyalty to the flag.

It is the job of every business man to build up this same sort of loyalty in his own organization.

PROGRESS ON NEW WATER WORKS SYSTEM

Trenton, Ont.—Messrs. McNabb & Traverna have finished laying water mains from Queen street to Lorne Ave. on King street and from Dundas to the new water tank on the hill. Also from Division street to new pump house and from the new collecting gallery.

The contract given to Weddell & Saunders for pump house is all but completed and the collecting gallery along the foot of the mountain some four hundred feet is expected to be completed in three weeks' time, providing weather permits. This gallery is capable of holding an immense surplus supply of water and the contractors de-

cided to finish the work rather than wait till spring.

The big tank on the hill is also completed.

The pumps for the pump house have been ordered and will arrive about February first.

WATERWORKS ASSN. TO HOLD MEETING

A mid-winter meeting of the Canadian Branch of the American Water Works Association will be held in February 22nd and 23rd, at the Carls-Rite Hotel, Toronto. The meeting was arranged by the executive committee which met in Toronto recently. Arrangements are also being made for a display of water works appliances and machinery in connection with the meeting. The official program for the meeting has not been received as yet.

WATER WORKS COMPLETED

Woodbridge, Ont. — The town of Woodbridge has completed and has now in operation a modern up-to-date water-works system, surpassed by none other in the province of Ontario, according to local authorities and the firm of architects in charge of the undertaking.

Around August 1st work was begun on the system, and since that time two miles of water mains have been laid, a stand pipe with a capacity of 100,000 gallons constructed and a well, with a capacity of one-third of a million gallons a day excavated and completed. The estimated cost of the undertaking was \$37,000, and a remarkable feature in connection with a public work was that this amount has not been exceeded.

Suggestions for Current Advertising

(Electros of illustrations can be procured from Sanitary Engineer)

Greatest Need in Farm Homes



THERE is not a convenience enjoyed by householders paying taxes for city water service that cannot be had with a compression tank and pump in a farm home—a bath with running water both hot and cold, running water in kitchen, running water to wash the automobile or extinguish the fire. This last consideration has saved the price of a water system many times over on many Canadian farms.

Let us show you why city people live longer than those in the rural districts.

(Your name here)

Phone number.

Address.

Ban the Handyman!

ONLY competent, well-trained mechanics who can make lasting repairs or correctly install plumbing or heating fixtures. The life of such equipment is materially shortened by faulty installation. The investment should be protected.

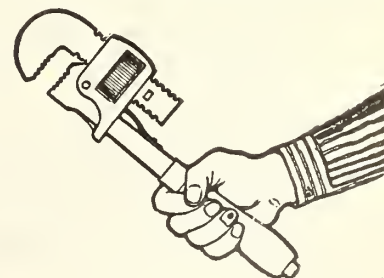
It will pay you to see us when you want economical, reliable repair service. We have the fully qualified mechanics and the equipment to handle them to do satisfactory work. A long list of satisfied customers, many of them in your district, will confirm this statement.

We can safely guarantee our repair work and installation work. This added protection costs you no more.

(Name here)

Phone number.

Address.



Rural Sewage Disposal Systems

Physical and Bacterial Action in Septic Tanks—How Sludge Accumulates and is Dissolved or Broken Down—Action of Bacteria in Cultivating Chamber—How to Assist Germ Life in System

Written for Sanitary Engineer by EDWIN NEWSOME, Consulting Sanitary and Heating Engineer

(Continued from last issue)

THE chapter published in the Dec. 15th issue of the Sanitary Engineer dealt with the history of germ life and its application to sewage disposal systems and the why and wherefore as to why the effluent discharged into the disposal system of field tile pipe does not freeze. A little explanation from a physical as well as bacterial action is worthy of careful consideration.

First of all let it be noted that septic action must take place in a septic tank and that no harmful chemical compound such as carbolic, formaldehyde, formalin, permanganate of potass, lysol, cresol, creolin or any such antiseptic fluid are used to any great extent.

If the state of health of the occupants of a house require that any antiseptic fluids must be used, the discharge should not be permitted to enter into a septic tank.

To name any or all of the above as injurious to the bacteria in a septic tank, does not by any means infer that those compounds are injurious or harmful to humanity when used for specific purposes, but it does mean that fluids of that nature are injurious to the friendly

bacteria so very necessary in a septic tank.

In the septic process of purification, sewage from a plumbing system enters into the septic tanks, and, for a period, a fairly large quantity of solids will remain in the form of sludge and unbroken up solids, human excreta, fats, paper, and so on, the fluid which enters the tank is to some extent charged with oxygen, which is dispelled by the presence of aerobic bacteria. The latter soon disappear when the sewage has been freed from oxygen while at the same time the scum which by this time has formed on the top of the sewage.

Then this aerobic bacteria, having done its work, leaves the sewage in a suitable condition for anaerobic action, which is the most effective in liquefying solids, and in this way the first chamber or septic tank becomes the seat of two distinct actions.

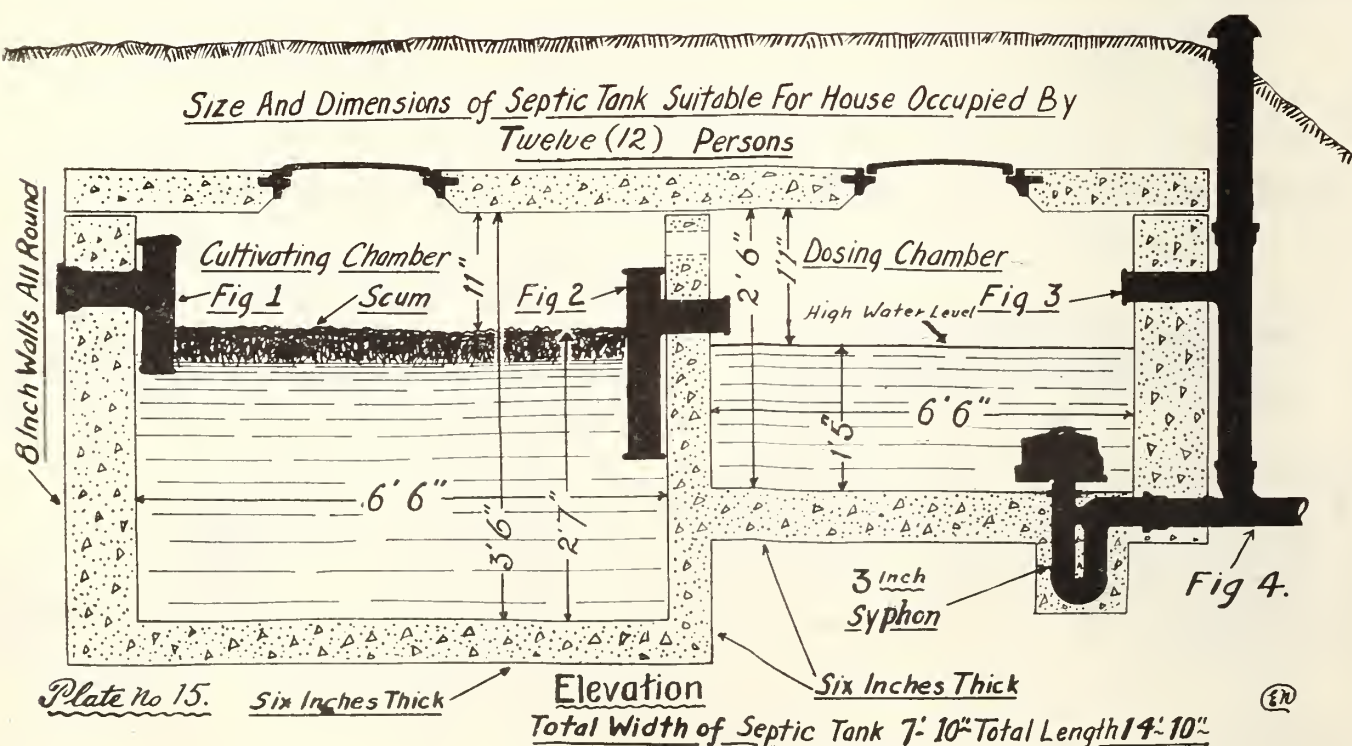
For example, the interior, and on the bottom of the tank, anaerobic bacteria attacks the solid matter, both sludge and floating solids, and while the anaerobic bacteria is thus working the aerobic bacteria, re-attacks the sludge,

and in that process keeps the sludge down to a minimum.

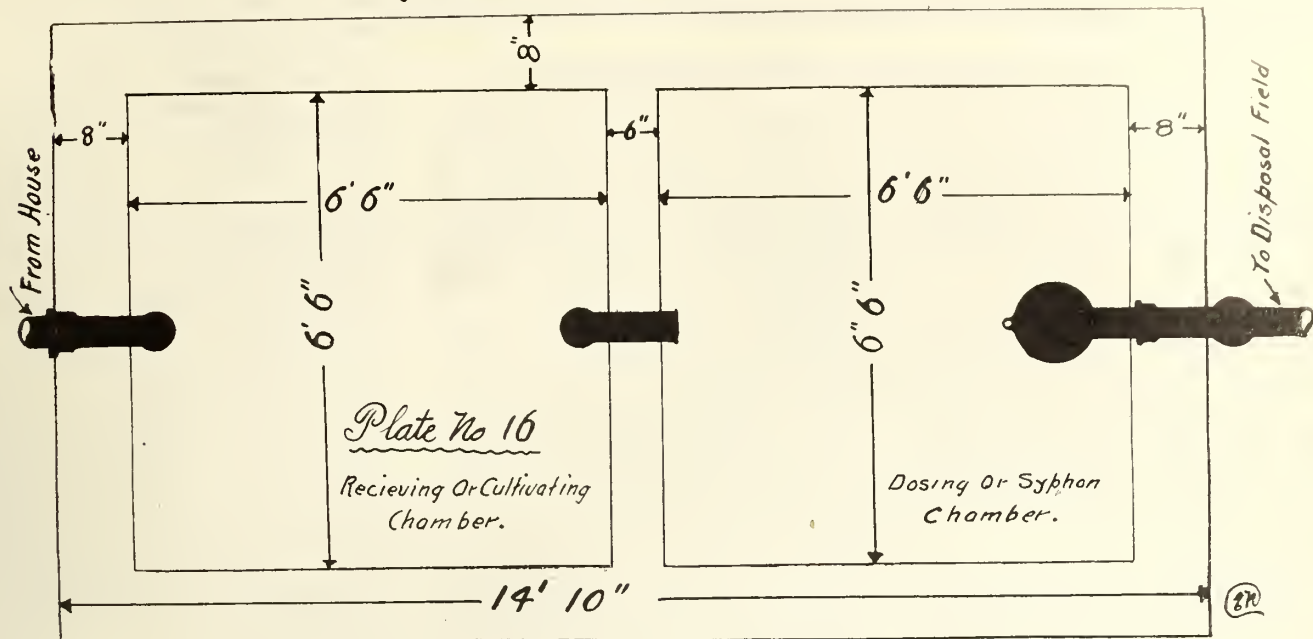
Let it be further explained. The sludge on the bottom is subjected to both biological and physical action. Gases produced by the liquefying bacteria in the sludge, rising to the surface of the fluid by the aid of small globules of gas, which gas becomes liberated at the top of the fluid under the scum, these gases then penetrate the scum and are carried off up through the soil pipe stack. The sludge freed of the gas globules again settles to the bottom of the tank.

The physical action is taking place night and day all the time, in the septic tank (first chamber) and if it were possible to place a glass in the side of this tank, the physical action could be clearly seen, and it is only when the effluent ceases to be active that it rises and overflows into the dosing chamber. The solids, as before stated, do not overflow into the dosing chamber.

It will therefore be seen by the above detailed explanation, that the effluent when it enters the dosing chamber, is entirely free of oxygen, but is in such a condition as to be ready for fresh air.



*Plan With Size Of Septic Tank Suitable For House Occupied
By Twelve (12) Persons.*



this is procured as soon as it is discharged into the field tile area, and because of the fact that such bacteria as are found in the upper surfaces of the ground, namely aerobic bacteria, makes it necessary to provide an intermittent application of effluent from the dosing chamber.

There are few authorities on this subject that would state just how much sludge will or will not accumulate in the septic tank compartment. For example, if a tank is constructed in the fall of the year, and the process necessary to break down the solids has not reached its most active stage, a greater depth of sludge will be formed in the bottom of the tank. This condition is not likely to be alarming, because as soon as the spring comes around, or provided that an extra quantity of hot water is used, with a relative quantity of solids, the sludge will gradually disappear.

The writer has known where the sludge has collected in a septic tank to the depth of twelve inches during the first 6 or 8 months after tank has been put into operation, and 4 months later, the sludge has disappeared until only two inches remained.

It is well to have the septic tank inspected at least once a year, during the warm part of the fall season, because if, upon inspection a great amount of sludge is found, it should be removed, as it is not likely that the supply of sewage during the colder seasons, would be warm enough to entirely, or even partially, destroy the sludge as well as break up newly discharged solids.

If, however, the septic tank was inspected in the spring, and a fairly deep sludge contents were found, there need be no sludge removed, as the warmer weather would assist the breaking

down process; very likely before the fall season all the sludge would be gone.

The writer made inquiries from the owner of a septic tank installed by the former over 15 years ago, and though for several months foul odors were found to come from the breather, later on no such disagreeable condition prevailed. Another case was found not far from Toronto where a septic tank has been in use for over four years, and no odors are to be found, and with the exception of the first month or so, no odors have been noticed.

If it were possible to procure a good quantity of scum from an already active septic tank, the scum then placed in a newly constructed tank the trouble with odors would be largely overcome. But the re-planted scum would have to be little disturbed, and placed into the cultivating chamber when same was nearly full, and at no lower a temperature than 65 degrees, or not lower than the temperature of the fluid from which the scum had been taken.

The average summer working temperature of sewage is about 60 to 65 degrees Faht., whereas in winter the temperature will fall to 44 or 46 degrees Faht., which is quite normal and not likely to freeze. One of the greatest "help," towards keeping a field tile area in good condition is to dig it, plow it, harrow or otherwise break it up. This will re-aerate, or charge the earth with more aerobic germs or nitrates so that it will be clearly seen that a vegetable garden, truck or domestic, would be a most favorable area for a subsurface disposal field tile system of piping.

The accompanying illustrations show plan and elevation of a septic tank suitable for taking care of sewage from a house occupied by 12 persons. The syphon will discharge 324 gallons of effluent per operation every 24 hours,

it will be necessary to lay 648 linear feet of field tile pipe. The size of this tank is arrived at by making an allowance of twenty-seven gallons per person.

Some authorities claim that an allowance of not less than 50 gallons per person per day should be made, but from inquiries made, the writer finds that in towns where houses are metered as low as 6 gallons per person is consumed daily. We will deal with this matter in our next issue and show where out of over 2000 families the greatest quantity used per family of five persons averaged only 18½ gallons per person. Yet we have town and city water works authorities claiming that as high as 300 gallons per person per day is used. We will give some startling information regarding this too later, because it has a great bearing upon sewage disposal systems.

(Continued in next issue.)

FIFTEEN NEW CUSTOMERS IN A WEEK

(Continued from page 13)

and to the departments of health of the provinces calling the attention of the members to the menace lying in unfiltered water in such pools. It is pointed out that contagious diseases of all sorts are to be contracted in the swimming pools where unfiltered water is used, and the names of some of the more malignant diseases are specified.

That filtration systems can be installed by any efficient plumber has been proven conclusively in the maritime provinces, where installations have been made by plumbers who have not seen a swimming pool or filtration system until engaged to make the installation. An ability to clearly follow defined instructions is the chief asset demanded.

THE QUESTION BOX

Warm Air Heating in Rural School

Knowing that for years you have been an authority on heating, and having read your articles in various trade journals, we desire some information regarding a heating system which we have installed in rural school near Orillia.

The situation is as follows: We furnished a pipeless furnace and installed it as shown on the enclosed plan. The trustees now ask us to move it to the rear of the basement; the present location of the furnace is shown on plan. Could you suggest a better location and one that would enable the furnace to heat the building satisfactorily? Please rush your reply.

The trustees desire us to place the furnace as shows in the rear; see plans 1 and 2. Plan one gives desired location of registers. Plan two the desired location of the furnace. Awaiting your early reply.

T. P. and Co., Orillia.

P. S. Kindly return sketches with your reply.

In the first place, we sent our reply by return mail, but for the benefit of

our readers, have decided to publish a more detailed answer to the above inquiry. The writer also happened to be in Orillia at the time this matter was under discussion, and found that there were one or two other points to be considered than actually appear in the correspondence.

Here is the situation:—Certain ratepayers decide to erect a school. They elect a number of trustees, who in turn appoint a building committee.

The committee prepare, or have prepared for them, the plan of a school. Size about 60 feet long by about 25 feet wide. The accompanying sketches show the two floor plans, basement and school room. The committee have erected the school. No specifications were drawn up as to size of furnace, type, or method of heating, except that the school had to be heated by warm air.

The building committee did not make out any specifications for the heating system, but did request that a large enough furnace be installed to heat the school without unduly forcing same.

The heating contractor used his own

personal judgment in the matter, based upon years of previous experience, coupled with the knowledge he had as to the purse strings of the ratepayers and, therefore, installed a pipeless furnace in the manner and location shown in plan number two. And we find that the furnace heats the building well and to the entire satisfaction of the building committee as well as several others of the trustees. But—it now transpires that the basement is required for purposes that require a clear space from rear to front and the contractor is asked to take back the present furnace, furnish a pipe furnace and install it at the rear in a separate compartment where the fuel is stored.

We are asked for advice, not as to whether the contractor is or is not entitled to some remuneration for the changing of the furnace, but rather as to whether or not the present kind of furnace is the best, and if it could be better located, as well as whether we think that a pipe furnace with registers placed as suggested would be best.

In the first place, we do not think for one moment that a pipe furnace would heat the building at all if placed as suggested.

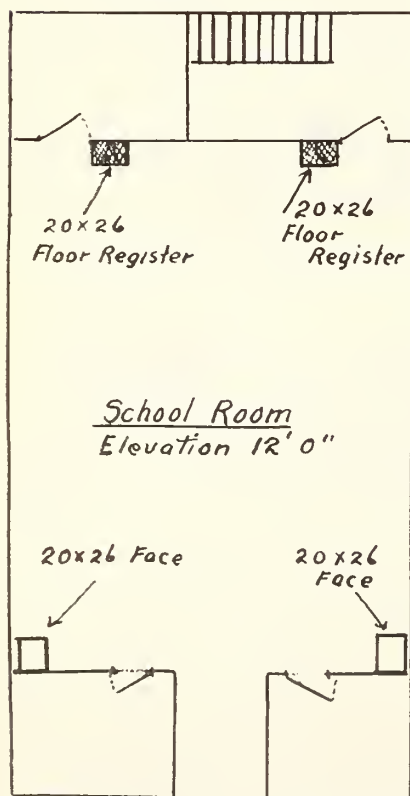
It will be seen that two warm air registers are shown in the floor near baseboard, 20 inches x 26 inches. Also a round face register in wall at the rear of the basement, 20 inches in diameter. Holes have to be cut at the base of the furnace to admit cold air, but no cold air pipes have to be connected. Two cold air registers are to be placed as shown, and to these registers two cold air boxes are to be carried to within 20 inches of the basement floor.

The suggested change is one of the most impractical plans we have ever seen, as well as very insanitary. In the first place the proper location of a pipe furnace would be in the exact centre of the basement, with registers near the two side walls, at equal distances from the rear and front, with two cold air registers, one near the front entrance and one at the rear. The furnace then would heat the floors above as well as the whole of the basement. But to expect a furnace, placed at the rear in a separate compartment as shown, is asking too much of any kind of furnace. Then again, to allow cold air to be drawn from the firing room or even from the basement would set up unhealthy conditions. No sanitary engineer would endorse such an idea. The dust and dirt from the floor of the school room, as well as the basement would be drawn with the furnace and forced up to the school room, and inhaled by the pupils. It is just such conditions that are responsible for 75 per cent. of our victims to tuberculosis. And, understanding this, we feel sure that no school board, ratepayers or committee of ratepayers would wish to have a heating system so installed.

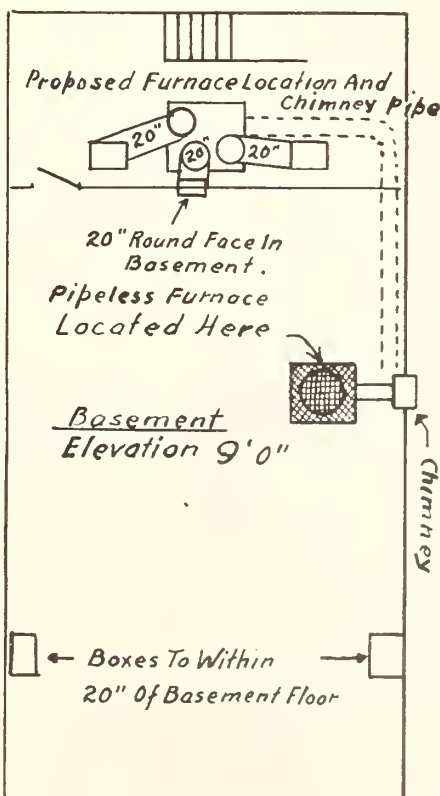
If the ratepayers wish to use the basement to a greater degree than is possible (Continued on page 23)

Warm Air Heating In Rural School

Plan 1



Plan 2.



Sketch Submitted By Orillia Subscriber. ©

"Force Manufacturer to Sell to Consumer at Same Price as Wholesaler or Other Trader"

Such is Effect of Decision of Federal Trade Commission of U.S.
Which Certain Wholesalers Are Opposing—Would Play Into
Hands of Co-operative Retail and Chain Store Organizations

A SITUATION of much interest to the retail and wholesale trades has developed in the United States, recently, in connection with an appeal by The Mennen Company against the Federal Trade Commission due to a decision of the latter body which is said to limit the freedom of sellers in formulating and carrying their selling policies into execution.

In this connection a brief has been filed in the United States Circuit Court of Appeals, at New York, in behalf of several of the most prominent national merchandising associations and other bodies. These are wholesale firms and it was felt that as The Mennen Company were manufacturers, that these representations would present a more complete aspect of the questions involved.

This brief contends that the commission has misconceived, in the order appealed from, the purpose and effect of Section 2 of the Clayton Law making unlawful any discrimination in price between different purchasers of commodities, where the effect of such discrimination may be to substantially lessen competition or tend to create a monopoly in any line of commerce. Cases where this decision did not conform with other decisions of the United States courts in similar matters were given. It is further pointed out that the arguments presented by counsel for the government are fallacious. Among others the following statement was made at the hearing: "If all manufacturers in the drug and sundry lines adopted the marketing system of the respondent, it would force the closing of the doors of every concern discriminated against in price. The evidence in this case shows that the marketing system of the respondent was adopted to:

Forces Resale at Suggested Price

"1. Force resale of its products at its suggested prices. 2. Penalize efficiency and economy. 3. Satisfy complaints and demands of individual members of the National Wholesale Drug Association, competitors of co-operative wholesale houses."

The brief goes on to point out that there is nothing to show that The Mennen Company endeavored to force resale of its products at its suggested resale prices, and the other charges are said to be without foundation.

The brief points out that if the order appealed from be affirmed and the method of business be forbidden, the result will be to lessen competition to a vastly greater extent than if such order be reversed and such method be declared lawful. The argument is summarized to the effect that if the contention urged by the Federal Trade Commission should be declared law, it would follow:

"Firstly: That wholesalers would be seriously hampered, their business materially impaired and their future existence imperilled, if not terminated.

"Secondly: Retailers not within the class of chain stores, department stores, mail order houses or members of co-operative corporations, buying clubs or syndicates (and the retailers who are not within such class are immeasurably the larger number of retailers in the country) would be unable to compete with the retailers in the classes named, their business would be impaired and their future existence imperilled, if not made impossible.

Favor Individual Consumer

"Thirdly: If the system contended for by the Federal Trade Commission be established and manufacturers forbidden to discriminate in price as between wholesalers and co-operative corporations and the like, the same principle would forbid

such discrimination as between the two classes named and the individual consumer when the latter buys the same quantity of a given commodity as the former. Such a situation is not only conceivable, but it is a matter of common occurrence that an individual consumer does buy certain commodities in the same quantity as a wholesaler, e.g., a box of soap, a stove, a range, an automobile. If the new system of business here contended for be declared to be the law of the land, a manufacturer would be compelled, in the instances named, to make direct sale to the individual consumer at the same price as to the wholesaler. The obvious result of this would be the impairment of the business of the wholesaler and of the retailer and a serious derangement and disorganization of the business of the manufacturer. It is not too much to say that the result would be little short of chaos. Nor is the illustration chimerical or fanciful. It but depicts the natural consequence to be expected from apaternalistic and meddlesome interference by government with the conduct of private business. Even if these results should not occur in the precise detail and to the precise extent indicated, such interference and control on the part of government would necessarily tend to check the initiative of the merchant and manufacturer, by imposing upon the free exercise of his judgment as to the most efficient method of conducting his business, the judgment of a governmental tribunal and of the courts. It cannot be doubted that such a procedure would impair efficiency, check and hamper individual enterprise and energy, and to tend to deprive the trade and commerce of the country of the benefits which normally flow from business skill and acumen when not exercised by methods inherently wicked or constituting offenses mala in se—methods not claimed to be present in the case at bar.

"The value of the 'old line wholesaler' in the scheme of distribution of manufacturers is an economic fact long established. They constitute, in substance, the salesmen of the manufacturer. They gather together under one roof the products of many manufacturers and hold in readiness in their warehouses these countless products for prompt and ready distribution in small quantities to the retailer. By closer acquaintanceship derived from propinquity to their retail customers, they are better able to judge of the financial credit of the latter than the more distant manufacturer. If these wholesalers be driven out of existence, the manufacturer in most lines of industry would be confronted with the need of making direct deliveries to countless customers, at great distances, in relatively small quantities, and without adequate opportunity of determining the credit standing of such customers. It seems fair to say that such an undertaking would be impossible. The wholesaler now fills this function to the satisfaction of the manufacturer and of by far the greater number of retailers in the country. Shall this time-honored institution be disrupted by the inauguration of the new and unheard-of system here urged by the Federal Trade Commission—and so urged upon the basis of a statute never designed to that end; and, in the debates which accompanied its passage through Congress, no word in support of such a system was ever uttered?

"The order appealed from seems to have been based upon a superficial reading of Section 2 of the Clayton Act, without regard to its history and to its declared purpose; without regard to the decisions of the courts adjudicating it and the other anti-trust laws; and without regard to the vastly greater injury to trade and commerce which would follow from the procedure which that order would inaugurate, than from the long-established procedure which that order seeks to prohibit."

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No. 2

An Unfortunate Situation

THE alleged high cost of plumbers and plumbing, were subjects discussed at a recent open meeting of the New York Association of Master Plumbers, the idea being to bring to the attention of the public the abuses said to be fostered by the workers. It was charged that fifty million dollars' worth of plumbing contracts for this year were tied up because of an artificially created famine in plumbers; that employers were forced to pay plumbers \$10 and \$15 a day and guarantee overtime despite the fact that the union scale calls only for \$9 a day. It is stated that twenty representatives of the Plumbers' Union were among those attending the meeting but declined an invitation to comment on the charges made.

It is unfortunate that those men engaged in the industry itself have no more concern for its welfare in the eyes of the public than to be a party to such a situation. Steps must be taken to renew confidence among the public in their regard for the plumbing industry both from the standpoint of their functions and their integrity.

* * * *

A Profitable Field

PERHAPS it's just as well that carrying pocket microscopes isn't fashionable. If we were to examine the air in many of the public places we attend all unconscious of the danger, we would be horrified at the result.

None of us would consent to being confined, for even a few brief moments, in a room which we knew to contain thousand of germs each carrying a deadly disease. Common sense would prompt anyone to avoid such a room, for it would be almost impossible to avert being inoculated with some disease which might ultimately cause death.

Yet, despite the good sense that causes humanity to fight shy of contact with contagious maladies, thousands of otherwise prudent persons flock daily to poorly ventilated public places without a thought of the many health perils which may be harbored there in the fetid, poisonous breath exhaled by hundreds of individuals, and intermingled in the dead, foul atmosphere.

This scientific fact is borne out by the frequency of persons fainting wherever a crowd congregates indoors. Seldom does a large number of persons collect in one enclosed place without one or several individuals growing weak and sick. This is due to the lungs becoming impoverished from lack of oxygen because sufficient fresh, clean air is not available.

It has been observed that such occurrences are most frequent in theatres, and an investigation of public gathering places revealed an almost total neglect of correct ventilation.

In many states, statutes and city ordinances have been enacted to enforce the laws of fresh air, and compel owners of theatres, and other places where crowds gather, to install ventilating equipment of a character which will ensure abundant fresh air.

The field of ventilation equipment offers the plumber splendid opportunity for business. The need for such equipment is not as apparent as is the case with plumbing or heating appliances and for this reason more educational work is necessary. The foregoing may give some ideas for developing this kind of trade.

* * * *

A Much Undersold Field

THERE are a great many opportunities for the merchandising of plumbing equipment which are not being fully taken advantage of by sanitary and heating engineers. The case cited elsewhere in this issue of a small Maritime plumber who, acting on a suggestion to get some letterheads and envelopes printed, and send out a number of letters to prospects, secured a number of new customers in short order. Such opportunities exist in every municipality in Canada. The field for equipment in rural districts is one which offers wonderful opportunities, likewise the industrial field where business men are gradually being educated to the advantage of sanitary conditions for their employees.

In the field of water heaters there is also a big opportunity where gas is available. There is said to be an advantage in heat saving in the use of a gas heater as compared with certain other forms of water heating. There are many towns of 20,000 population where there are 800 to 900 automatic water heaters in use. In one larger city there are 18,000 small heaters and 3,000 automatic heaters in use, the latter chiefly in houses of a value of \$10,000 and over. In the Pittsburgh district there are said to be in the neighborhood of ninety thousand automatic gas water heaters in use. There is claimed to be a field for the sale of nine million automatic heaters in the United States. The number would be considerably less in Canada, but it is in greater ratio than the proportion of population because of climatic conditions.

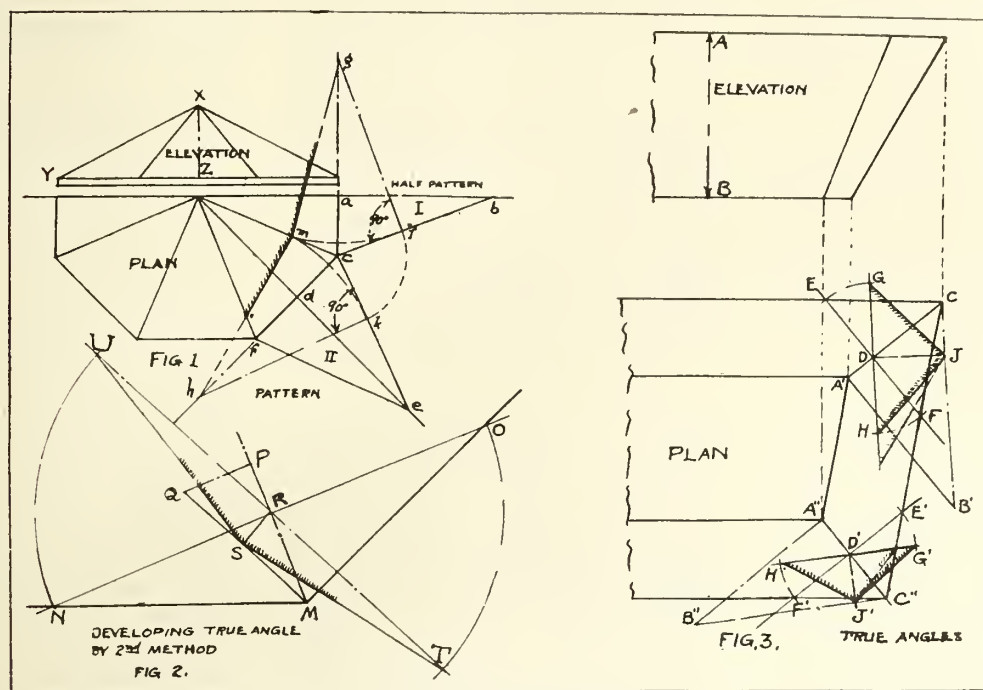
Moisture and other weather conditions affect heaters, and in certain sections their life of usefulness is much shorter than in others. This offers opportunity for renewal as well as new business. This is undoubtedly one of the most undersold fields in Canada and one which lends itself to development of profitable business for the plumber who gives service equal to those who are now taking the cream of such business.

* * * *

CANADA'S improving financial condition is shown by reports just issued indicating an increase of \$6,000,000 in the revenue for the nine months of the fiscal year ending December 31. The biggest increase is shown in Inland Revenue, from Sales and Stamp Taxes. In the nine months these taxes brought \$75,000,000 into the treasury, an increase of \$20,000,000. Income tax revenue declined twenty million dollars, being a reflection of business profits, while Customs revenues increased ten million dollars in value. These figures indicate higher values and increased imports, an increase in volume of business done in the country, though profits were not up to usual levels during last year. This is a true representation of the business experience of that year and the thing to do this year is to increase the profit margin where possible and to stimulate turnover.

Patterns Show Use of Hip Angles

Written for Sanitary Engineer by O. W. Kothe, Principal St. Louis Technical Institute, St. Louis, Missouri.



Patterns for Hip Angles.

THE finding of true angles through hip lines of various designs as covers, hoppers, pipes, etc., is very important, and is also a part of descriptive geometry, extended to a more practical application. In figure 1, we take on the development of the angles in the hip of a pitch cover made to an octagon. The plan shows the half octagon, while the elevation shows the rise with X-Z as center height. Now one manner of developing true angles is shown in connection with this plan.

The first step is to lay out 2 patterns directly from the outline of plan. So we pick the side line of cover X-Y, and we set them as a-b and d-e in pattern I and II. Then we draw the slant lines c-b, also c-e and f-e. This will give the separate patterns for each octagonal segment. The next step is to set dividers to any radius, and using c as center, describe an arc as j-k. Then from these points square out lines to right angles to their base lines, or 90 degrees, to intersect the extended plan lines in points g and h. Now use h or g as center, and k as j as radius, and describe an arc to the hip line of plan as in m. Then draw line h-m-g, which is the true angle for the hip. This hip would have to be bent to this shaded bevel.

The same result is produced by a different treatment as in figure 2, which M-N-O is the angle of outline of plan, or the octagonal angle in this case.

Then M-P equals the central miter line and also is the length of one of the miter lines in plan. From P square out equal to the rise X-Z as P-Q; then Q-M-P will be the true diagonal section through hip. At any place at R draw a line square to miter line M-P until it intersects the outlines in point N and O. After this, draw a line as U-T through R so that it is parallel with the hip line Q-M. After this, square a line at right angles from R to N-M as R-S. Now use R as a center and N and O as a radius, describe arcs to the line P-U. Then the angle T-S-U will be the true bevel through the hips of our cover. This method may be a little harder to see through than the above method, but it permits a wider range of application.

Then at figure 3 we show another treatment for hip lines of a pan, where it is the desire to have the true bevel of the angles in the hips, A-C-C'-A". Here this treatment is repeated as shown in figure 2, and hence needs no further comment.

WARM AIR HEATING IN RURAL SCHOOL

(Continued from page 20)

sible with the furnace in present position, there is only one location we would suggest and that is to move it a little to the rear about half way between chimney and the partition, and still use the same furnace.

The next best suggestion, if not the very best, would have been to install a steam furnace with a number of steam radiators fitted on the walls of the basement, and a number of direct-indirect steam radiators in the school room. Then the steam furnace would take up very little space, and there would be no pipes to obstruct any useful space in the basement.

The direct-indirect radiators, being of such a kind would not only heat the room, but would also admit fresh clean air from the outside. In conclusion, we are sure that taking every condition into consideration, the heating contractors used good judgment in placing furnace where they did.

PREFER TO JOIN CITY OF ST. JOHN

St. John, N. B.—It has been shown that the ratepayers of East St. John have a desire to secure extension of the St. John water and sewerage systems to East St. John rather than to install a special set of these systems in East St. John. Although the light voting precludes a definite indication of what the voters really want, yet the preference seems to be for the extension of the St. John systems and the ultimate annexation of the district to the city of St. John, instead of continuing as a separate municipality.

News Notes From Coast to Coast

Doings in the Plumbing and Heating Industry

BUSINESS CHANGES

Moose Jaw, Sask.—Frost Bros., plumbers, have discontinued their branch at Regina, Sask.

INCORPORATIONS

Hickey & Aubut Ltd., head office Montreal, capital \$50,000 to manufacture furnaces, stoves, ranges, piping, sanitary apparatus, etc.

Perfection Radiators Ltd., head office Montreal, capital \$750,000 to manufacture and deal in radiators.

PERSONAL

St. John, N. B.—Two master plumbers are acting as chairmen for wards in the Liberal city committee of St. John, there being indications of a coming election in New Brunswick politics. They are Joseph Doody and R. J. Harrington, both for many years identified with politics as Liberal workers, in St. John.

Dave Donaldson, formerly with Wolverine, Ltd., traveling from Fort William, Ont., west to the coast, has returned to the employ of the plumbing firm of Robert Paterson, Keele St., Toronto. Mr. Donaldson was for seven years with this firm and the break between his former employment and his return now has been of two years' duration.

PLUMBERS EXPECT BIG JOB

St. John, N. B.—Following the visit of Sir Henry Thornton, the new general manager of the Canadian National Railways, plumbing and heating contractors of New Brunswick seem confident a new station will be built at St. John. The plumbing and heating contracts for this big building will be luscious plums. Reports are that the work will be started in the spring.

KITCHENER BD. OF HEALTH MAKES REPORT

Kitchener, Ont.—The health of the city has been favorable in the past year according to the reports submitted by Sanitary Inspector W. H. Rau and Chairman Geo. Bucher at the last meeting of the year of the board of health.

The report by the sanitary inspector on the work and conditions in the past year follows:

For the month of December I report as follows:—Six cases of diphtheria and one of measles. As this is the last meeting of the year I will conclude my yearly report which is as follows:

We had sixty-three cases of scarlet fever, thirty-one cases of diphtheria,

seventeen cases of small pox, twenty-one cases of measles, three cases of infantile paralysis, one typhoid fever, in all 136 cases. Last year's report was 254 cases.

The sewage from several industrial plants on Spring street caused considerable trouble but this will be taken care of by the city engineer. The garbage system has been exceedingly heavy this year, averaging twenty tons daily.

CLOSE UP UNSANITARY HOUSES

St. John, N. B.—The St. John Board of Health has closed up several houses in St. John as unfit for habitation and a card so stating has been placed on the outside of each. This action has followed negligence of the owners in installing modern sanitary plumbing. There are said to be a number of houses now occupied by tenants in St. John that should be closed until the owners install sanitary plumbing.

WILL HAVE DRAINAGE CONVENTION IN CITY

Chatham, Ont.—Announcement has just been received that the annual convention of the Ontario Farm Drainage Association will be held in this city the last three days of this month.

The sessions of the convention will be held in the Chamber of Commerce. An

attractive program has been arranged and prominent speakers have been engaged for the various sessions.

EMPIRE BRASS CO. HOLD ANNUAL SALES CONVENTION

A four-day annual sales convention was held this month by the Empire Brass Manufacturing Co. Representatives were welcomed at the head office in London by C. S. Stevens, vice-president, who gave an outline of the improvement made in the Empire plant during the past year in the way of modern machinery and other factory equipment, designed to care for the increasing opportunities for trade in brass goods. The entire sales organization attended. A keynote of optimism was evident when prospects for business during the coming year were under discussion. The convention program was taken care of by W. H. Darling, sales manager, London, and O. L. Robb, manager of the Toronto branch.

SAYS WATER NOT RESPONSIBLE

St. John, N. B.—To the report that the St. John water has been responsible for some cases of typhoid in St. John and suburbs, T. M. Burns, secretary of the St. John Board of Health, has stated that Dr. H. L. Abramson, pathologist, for the provincial department of Health, has taken samples of the water and has pronounced the water good.

TENANT GETS DAMAGES FOR LACK OF HEAT

Montreal.—Tenants living in badly heated apartments will find some consolation in the judgment rendered by Mr. Justice Mercier in Superior Court, in which he condemned a landlord to pay \$250 damages to a tenant because a flat had not been kept at a "comfortable living temperature" as stipulated in the lease.

A condition in the lease was that the dwelling should be heated by the owner, and maintained at a proper heat at all times. In this the landlord failed conspicuously, he stated, and the average temperature of the place during the cold months of January to April 1922 was a bare 47 degrees above zero, Fahrenheit. The mercury fluctuated between 43 and 52 most of the time, with the consequence that the tenant caught a severe cold which required protracted and expensive treatment.

In addition, the cold and dampness injured the furniture and silverware to such an extent that these articles were damaged in an irreparable manner. In all, the tenant claimed \$760.



F. R. MAXWELL

Sanitary Engineer of Toronto, former President of Canadian Society, D.S. & H.E., who was re-elected Alderman in Ward 8, Toronto, for 1923 and elected Chairman of the Board of Works for the city.

NORWOOD, ONTARIO, TO VOTE ON WATER WORKS AND FIRE PROTECTION

The fact that the Ontario Government is conducting short courses to farmers' sons and daughters as well as rural residents should make it possible for sanitary and heating engineers to put forth greater efforts towards increasing business in rural districts.

One town, Norwood, is already voting on a by-law which will, if passed, tend to increase the use of sanitary conveniences in that district. Mr. Newsome, the technical editor of Sanitary Engineer, is doing much good work along this line, and even if this bylaw does not pass, there is already good ground broken by the lectures already given.

Apart from the work done in this course Mr. Newsome is giving a lecture, open to the public at each town he calls, and Norwood citizens turned out to the number of nearly 200, a proof that people in Norwood want to know all about sanitary bathrooms and city conveniences. It is rumored too that a sanitary bylaw will go into effect regarding the installation and designs of sewage disposal systems, septic tanks, etc.

With the present interest in water works, and fire protection in Norwood, it would appear to be an opportune time for some one to establish a plumbing and heating business in that town, there being no local industry of that kind there.

MONTREAL BUILDING SHOWED INCREASE IN 1922

Montreal.—Building operations in Montreal for 1922, amounted to \$21,132,586, which is practically the same amount as recorded for 1921, amounting to \$21,726,332. If the \$5,000,000 building permit issued to the Mount Royal Hotel at the close of 1921 is regarded as being in a class by itself on account of its extraordinary investment, it will be seen that the building record for the year just ended shows a substantial increase over the ordinary building activities for the year 1921. The building record by months for the year was as follows, according to figures supplied by the Building Inspection Department: January, \$216,460; February \$561,100; March \$935,713; April \$2,038,834; May \$2,831,690; June \$2,558,077; July \$2,291,190; August \$2,080,270; September \$2,210,167; October \$1,720,875; November \$1,675,370, and December \$2,011,940.

WILL START COURSE AT COLLEGIATE FOR STEAM ENGINEERS

Regina, Sask.—A course for steam engineers will be started in connection with the evening classes at the Regina Collegiate Institute, it was announced by G. R. Dolan, principal.

The course will be for firemen who have had experience with high pressure

boilers and who desire to obtain second and third class certificates. Candidates entering the class will be prepared for the government examinations which will be held in March.

USED SANITARY ENGINEER'S SUGGESTED WINDOW DISPLAY

When calling on the plumbing firm of Band & Cole Ltd., Ottawa, a representative of Sanitary Engineer heard favorable comment from Mr. Cole's son, on the articles which have been appearing from the pen of Major L. L. Anthes. At the same time this firm had a window display showing a Christmas tree hung with bathroom fittings, taken from a suggestion appearing in a December issue of Sanitary Engineer. The firm find the paper useful for giving such ideas.

WESTERN ONTARIO NEWS

Alex. Milne, London, Ont., has been awarded plumbing contract for new \$10,000 citadel being erected for the Salvation Army.

E. R. Seabrook 119 King St., London, Ont., is preparing plans for two new dwellings to cost \$8,000 and wants prices on hot air heating, plumbing and electrical equipment.

Dr. F. N. Sangster, Sarnia, Ont., has plans and will call for tenders shortly for new residence costing \$15,000. Prices wanted on hot water heating, plumbing and electrical work.

Plans are to be prepared by Watt & Blackwell, Bank of Toronto, London, Ont., for a \$100,000 addition to St. Joseph's Hospital. Prices will be wanted on steam heating, plumbing and electrical work.

Ed. Bratt, Harrow, Ont., is preparing plans for new \$4,000 dwelling and wants prices on heating and plumbing.

Ratepayers of Campbellville, Ont., have voted on the question of installing an electric lighting system.

Architect W. G. Murray, Dominion Savings Building, London, Ont., is preparing plans for a new residence to cost \$15,000 for R. H. Dowler. Prices will be wanted on steam heating, plumbing and electrical work.

John A. Nash, 182 Dundas St., London, Ont., is having plans prepared for an addition to his jewellery store to be used as an art gallery. The building will cost \$20,000 and prices will be asked shortly for heating and electrical equipment.

PITTSBURG WATER HEATERS

A new general catalog covering their line of copper coil water heaters has been issued by the Pittsburgh Water Heater Co., of Pittsburgh, Pa. This book is profusely illustrated with the various types and styles of heaters, showing methods of installation, dimensions and details of construction, as well as general views. Much useful information is also given regarding the uses and adaptability of these particular products. The principle of operation, together with the different sizes, are also contained in this illuminating catalog.



DO YOU KNOW THAT—

Many a man has made a false step by standing still.

A wheelbarrow will stand on its two legs and never move a foot unless you lift it up and push it along. So would business. You've got to pick it up and push it along.

You don't have to know anything about grammar to tell the truth.

A hen is the only creature on earth that can sit still and produce a dividend.

Talking comes by nature; silence by wisdom.

When a man starts out to make a fool of himself he can be depended upon to surmount all obstacles.

No currency is elastic enough to stretch from earning capacity to desire.

He profits most who serves best.

Good ideas are only seeds. They must be planted and tilled before they can produce.

There are two kinds of men who never amount to anything—one kind cannot do as they are told, and the other cannot do anything else.

The best time to loaf is after you're dead.

So many things seem impossible—until they are attempted.

"Madam," said the conductor, politely, to the colored lady, "you must remove that suitcase from the aisle."

"Fo' de Lawd sake, conducto', dat aint no suitcase, dat's mah foot."

Catchers Keepers

"I wouldn't marry you," she said scornfully. "If you were the only man in the world."

"No, you wouldn't," he answered. "You'd get trampled to death in the rush."

The Lot of Them

A teacher in a village school asked the other day: "How many kinds of flowers are there?"

Three pupils held up their hands. She chose one to reply.

"Well, Beatrice, how many kinds of flowers are there?"

"Three, teacher."

"Indeed? And what are they?"

"Wild, tame, an' collie!"

Table Etiquette

The Teacher—And what do we do with the whale?

Bobby—Eat it.

The Teacher (sarcastically)—Oh, do we! And what do we do with the bones?

Bobby—Put 'em on the edge of the plate.

Finish Houses and Plumbing Before Applying for a Permit

Plumbing Inspector of York Township Gives Evidence in Inquiry—Plumbing Inspector's Fee Not Forthcoming for Long Period After House is Built

SOME points of interest to plumbers were brought out in connection with the inquiry held in York Township into certain alleged deficits in the Treasury. The hearing was before Judge Denton in Toronto.

H. Hughes, plumbing inspector, for the past two and one-half years, was a witness. He said he had two assistants, Beeston and McGowan. He had no systemized inspection whereby he knew that everybody who was building a house had had plumbing plans inspected by the Township, the staff wasn't big enough.

Often builders or owners finished their houses and the plumbing before they applied for a permit.

"All the plumbing would be covered up then," observed R. S. Robertson, K.C.

Witness: "If it was, and we found out we should prosecute, but we have to grant a permit."

There were hundreds of houses in the Township with no plumbing fixtures because there were no sewers. In this way the Township didn't receive the plumber's inspection fee until the plumbing was installed, sometimes years after the houses were built. He himself, examined and passed on all plans of proposed plumbing. He used "discretion" sometimes, if he thought the owner or builder did not purposely break the by-laws in their planning.

He Has the Say

Counsel: "Is there no appeal from your decision?"

"No."

"So that if you want to beat a man out of the plumbing business you can?" There was no answer to this.

Three houses had been completed last August, and had plumbing installed without the plans being first inspected by him. One of the houses was plastered, so that he couldn't inspect all the plumbing. The houses had been "O.K.d" by some unknown person. The plumber hadn't been penalized for not submitting plans.

Counsel elicited the information that witness had granted a permit to a plumber whose plumbing was all wrong when he inspected. This was "because his plans were all right" witness said.

Owner Complained

A letter was read from an owner, George Brown, complaining that the plumbing had been "O.K.d" by an unknown person before it had been completed.

"What did you do about that?"—A. —"We couldn't find the person."

Judge—"It might have been someone trying to get into the cellar. Some men will do that kind of a thing to get in a man's cellar and get his liquor."

Counsel: "Did you try and find out who was doing this O.K.-ing?"—"We made many inquiries, but couldn't get anything definite." He thought there was some animosity against Inspector McGowan, who inspected plumbing, and somebody might be trying to "get him in Dutch."

No Check on Other Depts.

Counsel: "Did you keep a check on the Waterworks Department as to when they turned on water, so that you would know that no owner would get away without having his plumbing inspected and paying his fee?"—"No."

Judge: "Perhaps it didn't occur to you."—"No."

Counsel: "Do you keep a check on what permits the building department are issuing?"—"There's no co-operation between our department, the Building and the Waterworks Department."

Witness wished more co-operation, and said he would like to be relieved of the handling of the cash he received for permits issue.

SPEND \$50,000 ON NEW SEWER SYSTEM

Nelson, B. C.—To install the Fairview sewer system will entail an outlay of \$52,026.81, according to figures given by W. M. Myers of Green Bros., Burden & Co., the city's engineers, in an estimate presented to the city council. This is the estimate for the entire project, covering all of Fairview but the hill section. The system will require more than four miles of pipe.

In the above figure is included \$18,535.50 for excavation, \$15,383.39 for pipe, \$8,575 for pipe laying. An item of \$2,875 is included for engineering work and inspection.

In the area covered by proposed system there are approximately 200 houses to be served and approximately 800 lots front on or will be accessible to the sewer. In addition to this number of lots there are approximately 300 additional lots which will be benefitted by the installation, as in no case will more than 600 lineal feet be required to give a connection.

"The total length of pipe on this proposed system is approximately 22,000 feet. The plans call for the construction of 50 manholes, 31 light holes and 32 catch basins. Three outlets are pro-

vided, the main one being at the foot of Kootenay street, with an outlet pipe 800 feet in length. The second outlet, at the end of First street, provides for a small septic tank and an overflow to the lake. This outlet will carry the sewerage from block 21 only, and will not be added to as the general system is expanded. The third outlet is at the foot of Poplar street.

"So far as possible the proposed system provides basement drainage for all houses, and to a large extent will collect through the various catch-basins the surface water which is now periodically a menace to a part of Fairview."

SEASONAL WINDY DISPLAZE

(Continued from page 15)

"Wots the big idear," I sez, tryin to look dignified.

"It certainly aint yourn," she bit off at me. "Theirs an old sayin," she continyvers hostically, "that childern an foolze shooldnt look at 1/2 finished werk. An you aint no child!"

I new I was goin to get the wurst of it so I begin to talk about myself an my trip to put myself at eeze—you know me Al.

But I was curyious as to wot the stunt in the windy ment, thow I never ast no more questus.

However wen Joe Hicks started to werk on the other side of the windy I begin to get wize. He fitted it up into 1 one of the swellst little bathrooms you ever seen. He put immytation white tileing on the flore and wails and used a big sheat for the sealing. He put in alectrick lites witch was turned on at nites.

The side with the Noze Ark fixtrs, he fixed up with common dark wall-paiper, and it was lit up at nite with a old coal oil lamp. I suggested that we awt to call the old 1 "befoar," and the new 1 "after," like a patient medycine add. But Vilet had beet me 2 it & had 2 nise-ly printed cards, 1 beeing, "Ancient," & the other, "modern," witch wear put in the 2 sidzs ov the windy respectab'y.

Youd athawt we was exhibityn man-eatin goofers the way peepls crowded around that windy.

Bill afterwadze explnd to me that the old junk had been taken out of the house ov 1 ov hour leadin cityzens just the weak befoar & their wear still a bunch of the same kind of fixts in menny of hour best hoams.

That exhbt must hev got on the con-sence of the popelace for overhawl jobs begin to come in regler wich was a good thing as the builden seazen was abt over & we was gettin slack.

So Ive came to the concln that windys are like men and wimmen. If their well dressed, peeoples will take notis—if their not the world passes them up.

With witch remks I draw to a cloze.

Yourze Jerry.

Market Conditions and Tendencies

Price Trend on Sanitary and Heating Supplies

Markets at a Glance

AN IMPORTANT list of price revisions appear on the current sanitary and heating markets. The changes include both advances and declines. It was outlined in some quarters that the turn of the year would most probably produce new quotations on various lines, principally of an upward direction, however, owing to the strengthening tendency evident in the undertone of certain basic commodities. A summary of the current market changes indicates that increases are more numerous than reductions. Higher price levels are noted on hot air furnaces, both pipe and pipeless; also stoves and ranges; lead products, including sheets, wool and solders, terne plates, pig iron, brass and copper rods, tubing and sheets. There has also been a change in the list prices on larger sizes of eavestrough and conductor piping. New price lists are issued on radiator valves and union elbows, with varying discounts at present being

quoted. The reductions include such products as, the Penberthy line of brass injectors, ejectors, air and pet cocks, water gauges, nickel-plated basin supplies, cement in carload lots, stop and waste cocks, and closet combinations. There has been no change in cast iron fittings, as yet. The upward tendency remains in cotton wastes, while delivery of wrought piping from the mills is now described as on a slightly better plane. Radiators remain on a firm price basis, with an upward tendency also noted in bar iron and steel. An unusual feature in the sheet markets is the upward trend in primary centres, and the fact that some shading has occurred in an attempt to attract business during the quiet period in certain domestic markets. The outlook for trade during the coming months for such lines as enameled ware, soil pipe and fittings, corrugated sheets, and asbestos products is stated to be good.

Montreal Markets

MONTREAL, Jan. 13.—A lengthy budget of price revisions is announced in the markets for plumbing and steam-fitting supplies. Advances are more numerous than declines, and the following are now quoted at higher levels: hot air furnaces, both pipe and pipeless, also stoves and ranges, lead products, including sheets, wool and solders, terne plate, and pig iron. Reduced quotations are announced on such lines as the Penberthy line of brass injectors, ejectors, air and pet cocks, water gauges, etc., nickel plated deep seal traps, stop and waste cocks and cement. Higher waste prices are still expected in some quarters early in February. The wrought pipe market remains in a strong position, also other lines of iron and steel products due to the firm tone in raw materials. No change is made in enameled ware quotations, these lines being quiet at the present time.

STOVES AND FURNACES SHOW PRICE INCREASE

Montreal.

Revised price levels are now effective on stoves and ranges, also hot air furnaces, both pipe and pipeless. Local manufacturers announce that new quotations are effective immediately, and show an increase of from five to seven per cent. on the various lines. The undertone of this market has been firm for some time because of increasing productive costs, and the present revision allows for the advanced costs of raw materials and labor.

REDUCED PRICES ON THE PEN-BERTHY LINE

Montreal.

Through a revision in discounts reduced prices are quoted on the Penberthy line of injectors, ejectors, air cocks, water gauges, etc., the reduction

amounting to approximately ten per cent. Following are revised discounts on some of the well-known lines:

Injectors	55 10/5%
Ejectors	70 10%
Air or pet cocks.....	50%
Water gauges, safe guard	plus 5%
Water gauges, standard	33 1 3%

COTTER PINS NOW FIVE AND TEN PER CENT. OFF

Montreal.

A revision in an upward direction is announced in quotations on cotter pins, these now being quoted less 5 and 10 per cent. Former discounts was 10 and 10 per cent.

FURTHER SLIGHT ADVANCE IN PIG IRON QUOTATIONS

Montreal.

That pig iron is on a firm market trend is evidenced by a further slight increase in quotations. Domestic iron

is advanced seventy-five cents per ton, bringing the present local price to \$34.90 per ton. While the low price reached prior to the advance of a few weeks ago was considered well down to bottom, and the trend would probably be upward in future for this reason, improved demand has also played an important part in this market.

SLIGHT REDUCTION IN CEMENT QUOTATIONS

Montreal.

After remaining on a steady basis for some months past, quotations on Portland cement now show a reduction of minor proportions, approximately six cents per bag. The buying movement of this product is slow at present, although business is described as seasonal, with prospects of brisk activity during earlier spring and summer months. Current quotations at the revision are;

CEMENT—

Car load lots, per bag, f.o.b.	
Per bag, f.o.b. steam cars	0 86
Per bag, delivered	0 94
Less car lots, per bag, f.o.b., yard.....	0 94
Per bag, delivered	1 04
Less 5 per cent.	
Rebate of 20 cents for empty bags.	

VARIOUS LEAD PRODUCTS MOVE UPWARDS IN PRICE

Montreal.

A quite extensive revision is recorded in the market for lead products when lead wool, sheets and solders are advanced in price. Wool is up one cent. per lb., sheets one-half cent in the various weights. Solders, with the exception of wire solder, are advanced one-half cent. Wire solder in two cents per pound higher. Metals on primary markets continue to display a very firm un-

dertone, tin spelter and lead being the strongest. Although lead has remained in a very strong market position for some time past there is no indication at present of any easing. This movement comes as more or less of a surprise to some well informed who were of the opinion that the advance had spent itself before the close of last year.

LEAD AND ZINC PRODUCTS—

Lead pipe, per 100 lbs., up to 2"	14 00
Do., 2" to 8"	15 00
Do., 8" and over	16 00
Lead waste, per 100 lbs.	15 00
Note—Lead pipe is subject to a discount of 10%.	
Lead traps and bends	15%
Lead wool, lb.	0 14½
Lead sheets, 2½ lbs., sq. ft. lb.	0 12
Lead sheets, 2½ lbs., sq. ft. lb.	0 12
Lead sheets, 3 to 3½ lbs., sq. ft. lb.	0 11½
Do., 4 to 8 lbs., sq. ft. lb.	0 10½
Cut sheets, ¼ c. lb. extra and cut sheets to size, ¾ c. lb. extra.	
Solder, guaranteed, lb.	0 27
Do., strictly, lb.	0 24
Do., commercial, lb.	0 23
Do., wiping, lb.	0 23
Do., wire, lb.	0 38
Zinc, sheets, casks	0 11
Do., broken lots	0 11½

GENERAL ADVANCE IN HAMMER QUOTATIONS

Montreal.

Local jobbing houses have now received new price lists on hammers showing advanced quotations on nail, riveting, and sundry lines. The increase is from five to ten per cent. on the various grades, such lines as machinists' blacksmiths' and tinners' hammers, mauls and wedges showing changes of a minor nature.

HIGHER COTTON WASTE PRICES STILL LOKKED FOR

Montreal.

Although new advanced quotations on cotton wastes were anticipated around the first of the year these have not yet made their appearance. The market, however, remains in a very firm position and one local dealer stated that a revision was still looked for and would probably be announced around the middle of the month or early next month. Other lines of cotton goods are now higher in price which denotes the strong tendency in raw cotton circles. Prevailing net prices are the following:

COTTON WASTES—	Per lb.
Cream polishing	0 19
White, XXX extra	0 17
White, XX grand	0 16
White XLCR	0 15
X Empire	0 13½
X Press	0 12
Colored—	
Fancy	0 14
Lion	0 12½
Standard	0 11
Popular	0 09½
Keen	0 08
Wool Packing—	
Arrow	0 24
Axle	0 20
Anvil	0 16
Dominion Wipers—	
White cotton	0 20
Colored cotton	0 14

WIRE NAILS ADVANCED TO \$4.00 BASE

Montreal.

Following the firm trend of wire and wire goods in primary markets, due to a brisk demand and higher production costs through higher raw material values, wire nails are advanced on the lo-

cal market twenty-five cents per keg. This brings the quotation to \$4.00 base. In announcing this revision local mills state that a very firm undertone exists in wire products generally and a further announcement covering other lines may be made at an early date.

WROUGHT PIPE MARKETS STILL DISPLAY FIRM TONE

Montreal.

Much the same conditions prevail in wrought pipe markets as have been outlined in previous reports, a firm tone being still behind in deliveries. Local mills are also experiencing the difficulty of securing supplies of raw materials. List No. 57 still governs domestic quotations.

COPPER RIVETS AND BURRS HAVE REVISED DISCOUNTS

Montreal.

Through a revision in discounts, advanced prices are recorded on both copper rivets and burrs. Copper rivets with the usual proportion of burrs are now quoted at less 25 per cent., while copper burrs separately are plus 20 per cent.

REDUCTION IN N. P. DEEP-SEAL TRAPS

Montreal.

A reduction has been made in quotations on 1½ inch deep-seal nickel plated traps and these are now quoted at \$5.50. 1¼ inch are selling at \$3.40.

REVISED DISCOUNTS ON STOP AND WASTE COCKS

Montreal.

As stated in previous reports changes in quotations on certain lines of compression goods were expected by local distributors. Manufacturers announce that discounts on both flatway and roundway stop and waste cocks are revised, and lower prices are now quoted on both lines. The discount in both instances is 56 per cent. It is also understood that radiator valves are now priced on a new list and discount, but up to the present time local jobbing houses are still quoting for former list prices. Following are prevailing discounts;

VALVES—

Compression work, standard	45%
Fuller work, standard	30%
Quick opening compression bibbs.	43%
Bath cocks, quick opening	41%
Bath cocks, compression	41%
Basin cocks, quick opening	46%
Flatway stop and waste cocks, standard ..	56%
Roundway stop and waste cocks, standard ..	56%
Brass steam cocks, standard, ¼ in.	60%
Radiator valves, standard	58%
Do., removable discs	58%
Quick Opening radiator valves	60½%
Globe, angle and check valves, standard ..	25%
Gate or straightway	25%
Emco globe valves	33%
Emco check valves	33%
Jenkins globe, angle, check and swing ..	
check	10%
Jenkins gate or straightway	16%
Montreal.	
Jenkins iron body, globe and angle	15%
Jenkins iron body, gate	25%
N. P. "O" and "S" traps	40%

INCREASED QUOTATIONS APPEAR ON TERNE PLATE

Montreal.

In the local sheet markets higher prices on terne plate, announced by jobbing houses, attracts attention. Quotation on the 112 sheet boxes are advanced seventy-five cents per box. It is stated that this revision is made in face of a firm market tone in production centres, and former prices were at a level which offered a very narrow margin of profit for distributors. Advanced quotations on tin plate in the near future are predicted in some quarters. Galvanized sheets remain on a steady to firm basis, and although there is no definite indication of a change in prices the tendency is undoubtedly upwards. The quieter winter months are passing and distributors are apparently quite willing to carry stocks over the remainder of the winter because of the firming tendency in the market, rather than sell at any lower levels in the hope of clearing the decks for spring business. Black sheets are very quiet with no particular change in the market.

BLACK SHEETS—

10 gauge, base	4 2½
12 gauge	4 35
14 gauge	4 45
16 gauge	4 55
18—20 gauge	4 80
22—24 gauge	4 85
26 gauge	4 90
28 gauge	5 10

GALVANIZED SHEETS—

	Queen's Head	Fleur de Lis
28 gauge	7 25	7 00
26 gauge	7 00	6 75
24 gauge	6 70	6 45
22 gauge	6 65	6 40
18—20 gauge	6 40	6 15
Other Brands—		
10½ oz.	7 00	—
28 U. S. base	6 50	—
26 U. S. base	6 25	—
24—22 gauge	6 10	—
20—18 gauge	5 90	—
16 gauge	5 75	—

Above prices are for ½ ton lots in English iron and 1000 lb. lots in American iron with an extra charge of 25c. for less quantities. Extra for sheets 3 ft. wide, 28 gauge and 10½ oz., 25c. per 100 lbs. Further extra for sheets 4 ft. wide according to gauge.

TIN PLATE—

20 x 28 x 100 lb. basis.	12 25
20 x 28 IC, 112s	12 75
20 x 28 IX, 112s	15 00
20 x 28 IXX, 56s	8 50
20 x 28 IXXX, 56s	10 00

TERNE PLATE—

20 x 28 IC, 112s, 200 lb.	13 25
20 x 28 IC, 112c, 214 lb.	13 75

CANADA PLATE—

Half bright 52s	4 85
Half bright 60s	4 90
Blued 52s	5 10
Blued 60s	5 15
Welsh, polished, 52s	6 50
Welsh, polished, 60s	6 75
Galvanized 52s	7 25
Galvanized 60s	7 75

STEEL MARKETS IN SATISFACTORY POSITION

Montreal.

In spite of only a seasonal amount of business from local warehouses distributors of bar products pronounce the market a being in a satisfactory position. There is a firm undertone in production circles, the market described as stronger at the present time than for some time past, and this condition is not usually in evidence during the quieter winter period. Quotations locally are unchanged with the exception of domes-

tic spring steel which is twenty-five cents per 100 lbs. higher.

BAR IRON—

Common bar iron, 100 lbs.	3 15
Refined iron	4 65
Irish finish machinery steel	3 20
Mild steel	3 15
Single reeled machinery steel	5 25
Band steel	3 50 3 65
Spring steel	5 00 8 00
Sleighshoe steel	3 15
Tire steel	3 30
Harrow tooth steel	3 30
Toe caulk steel	4 05
Mining tool steel, per lb.	0 20½
Black Diamond tool and cast steel, per lb. 0 20½	
NOTE—Refined iron is approximately \$1.50 per 100 lbs. over base, but fluctuates owing to unsettled market.	

Band steel in scroll bundles, 50c per 100 lbs. extra.

STRONGER TONE SHOWN IN RADIATORS AND BOILERS

Montreal.

In outlining the market tendency in radiation and boilers one local manufacturer stated that recent developments in raw material and production costs had somewhat strengthened the situation on these products. Pig iron was now firmer in tone, and fuel costs were higher and still hard to obtain. Domestic labour had not yet increased but it was noted that moulders in the United States were to be granted higher wages and this would possibly follow here. There was, however, no indication of any revision in prices on either line at the present time, but certainly the tendency in the market was upward. Another manufacturer was of the opinion that nothing would be done in the matter of advancing price levels for some little time at least. Unfortunately there was a certain amount of unsettlement in the market and this had a tendency to weaken the position. Following are prevailing quotations;

RADIATORS AND BOILERS—

Radiator list prices are for 1, 2, 3, 4 and 5 column radiators, per sq. ft.
45 in. to 38 in., \$1; 32 in., \$1.10; 30 in., \$1.15; 26 in., \$1.20; 23 in., \$1.26; 22 in., \$1.30; 20 in., \$1.36; 18 in., \$1.40; 16 in., \$1.50; 14 in., \$1.55; 13 in., \$1.60. Discount 55 per cent for hot water, and 56 per cent for steam.

Wall radiators—5 ft., \$1.15; 6 ft., \$1.10; 7 ft., \$1.05; 9 ft., \$1.05; 12 ft., \$1.05; Discount 52 per cent.

Boilers—Round hot water boilers, sizes from 0 to 10, 60 per cent. off list. Square or sectional hot water or steam boilers, 15 in., 15 per cent. Square or sectional water boilers, 19 in. to 36 in., 20 per cent. Square or sectional steam boilers, 19 in. to 36 in., 17 per cent. Ontario Government trimmings, 15 per cent.

Round steam boilers, standard trimmings, 28 per cent. Ontario Government trimmings, 25 per cent.

F.o.b. Montreal, Toronto, Guelph.

STEADY MARKET TONE REMAINS IN CORRUGATED

Montreal.

When discussing the firm tone in galvanized sheets and the possibility of its reflection on corrugated sheets, a local manufacturer stated that he did not think the upward tendency was of sufficient extent to affect these products. Importers of English sheets had announced a minor revision in flat sheets owing to the strong market overseas, and the increased exchange rate, but the fact that they were now in the midst of a dull period would offset this tendency, for the present at least. Stocks

are in good shape, in fact more than ample to take care of present requirements. Following are list prices and discounts;

CORRUGATED SHEETS—

	Per 100 Sq. Ft.
No. 28 gauge	6 50
No. 26 gauge	7 00
No. 26, U. S. gauge	8 00
No. 24 gauge	9 00
No. 22 gauge	11 00
No. 20 gauge	12 50
No. 18 gauge	16 50
Less 10 per cent.	
Lighter than 24 gauge and wider than 27 inches, 75c. per square extra.	

NO CHANGE IN QUOTATIONS ON CLOSET OUTFITS

Montreal.

No new prices have made their appearance on closet combinations, although it was thought by some that some development along these lines might be recorded around the beginning of the year. Distributors state that there is little enough profit on these products without any announcement of lower quotations. It is also felt that a change downward would only prove detrimental to the supply houses as there has for some time been a more or less unsettled condition in the market, and easier prices would not tend to establish a more stable market tone.

CLOSET COMBINATIONS—

Low down outfits,	each
Closet, standard outfit, oak	25 00
Do., post hinge seat	26 00
Do., oak vitro or Pussyfoot	26 00
Do., post hinge seat	26 20
Do., mahogany vitro or Pussyfoot, post hinge seat and cover	28 45
Do., vitreous china, oak post hinge seat and cover	28 45
Do., vitreous china, mahogany post hinge seat and cover	29 50
Do., white Vitro mahogany post hinge seat and cover	29 50
Mahogany post hinge seat and cover	28 70
Do., enamelled iron tank, oak post hinge seat and cover	29 50
Do., enamelled iron tank, oak post hinge seat and cover	29 50
Add for ¾ in valve on supply pipe	1 25
Add for spud	0 60
Add for reverse trap bowl	1 50
Add for syphon jet bowl	7 00
Deduct for supply pipe	0 80
Deduct for floor hinge	0 60

CLOSET BOWLS—

Richelieu bowl	8 50
Washdown bowl with spud	10 60
Reverse trap bowl with spud	11 35
Syphon jet bowl with spud	16 25

CLOSET SEATS—

Oak post hinge seat and cover	3 85
Oak wood strip seat and cover	3 50
Mahogany finish post hinge seat and cover	4 05

CLOSET TANKS—

Low down, oak vitro with fittings, less seat	12 25
White vitro or Pussyfoot with fittings, flush elbow and supply	15 65
Vitreous china tank with fittings, flush elbow and supply	19 00
Enamelled iron with fittings, flush elbow and supply	16 50

VERY LITTLE DOING IN ENAMELED WARE

Montreal.

Seasonal dullness is evident in enamelled ware, sales being spasmodic and for small quantities. Jobbers anticipate a quiet market for the following weeks, although prospects for a resumption of activity in spring months are bright as a good building year seems assured.

There is no change in quotations, and following are list prices and discounts:

ENAMELED WARE—

Sinks, roll rim—	
18 x 30	\$23 00
Sinks, flat rim—	
16 x 24	1 only 2 only 3 only
18 x 30	\$ 7 50 \$ 7 40 \$ 7 30
20 x 30	8 70 8 60 8 50
22 x 30	9 90 9 80 9 70
Bath tubs, roll rim, 4, 4½, 5 feet, 24 to 30 in. wide	51 40
Bath tubs, 5½ feet	57 10
Lavatories—	
17x19 in. Apron F139 or P4045	15 30
18x24 in. Apron F154 or P3845 or P3847	23 60
18x21 in. Apron F169 or P4205	17 60
17x19 in. Roll rim. F241 or P4345	12 60
Less 33 1-3 per cent.	

MODERATE TRADE RECORDED IN BOILER TUBES

Montreal.

There is only a moderate amount of business being done in boiler tubes. Quotations on the various sizes are unchanged but these levels are firm owing to the upward tendency in primary markets, where a fair amount of activity is noted, and deliveries somewhat delayed. Local distributors state that an improvement in the movement of tubes would in all probability mean higher prices as they are working from stock, and not forced into replacement costs. Unchanged average quotations are as follows;

BOILER TUBES—

	Seamless Lapweld
1 inch	20 00
1¼ inch	22 00
1½ inch	21 00
1¾ inch	24 50 24 00
2 inch	21 00 19 75
2¼ inch	24 00 22 25
2½ inch	27 00 23 25
3 inch	33 00 29 50
3½ inch	38 00 34 25
4 inch	49 00 43 50

CONTINUED STRENGTH OF LEAD FEATURE OF METALS

Montreal.

Quotations on ingot metal markets are holding firm and in some cases have again advanced slightly, the new high point reached on lead being a feature on U. S. markets. Demand locally is still on the light side, but there should soon be an improvement and if the European situation takes on a more settled appearance a better tone is thought likely in all lines.

TIN.—This metal has marked time recently both buyers and sellers being somewhat cautious, but the general feeling is bullish and the strength of Sterling exchange would seem to point to higher prices. Locally the market is quiet but firm at 43½ cents.

COPPER.—The American market is dull put prices are unchanged and although export business is light at present domestic demand continues good. Copper is still the cheapest metal on the list and there are said to be indications of higher quotations in the near future. Prices remain at 18 and 17½ cents for electro and casting respectively.

LEAD.—Lead continues very firm in the U. S. with prices advancing daily, and \$7.40 East St. Louis has been paid. London is a little lower but is fairly

strong in tone and advances are expected there. The local market is strong at 8 to 8½ cents.

SPELTER.—The market in the United States has sagged slightly especially for forward deliveries, but this is probably temporary as stocks are still on the low side. London receded a little last week but has recovered some of this since. Indications are said to point to a firm market especially when Europe

again starts buying on this side. Quotation is from 9½ to 10 cents.

ANTIMONY.—Antimony is temporarily at least very firm and offerings from China are light. The local market is almost bare of supplies and prices are firmer at 8 cts. for English, 7½ cts. for Chinese.

ALUMINUM.—There is no new feature in the aluminum markets and quotation remains at 22 cents.

Toronto Markets

TORONTO, Jan. 13.—A fairly heavy budget of price revisions features the plumbing markets during the early weeks of the year. Developments include both increases and reductions. Higher prices are recorded on furnaces, both pipe and pipeless, also stoves and ranges. There has been an upward change in the list prices on the larger sizes of eavestrough and conductor pipe, while a similar revision is made in quotations on copper and brass products. A further increase in pig iron attracts attention to the trend of certain basic elements. On the other hand some easier levels appear on closet combinations, this change being foreshadowed in the last issue of Sanitary Engineer. There is also a decline in prices on stop and waste cocks, while cement costs are reduced in carload lots only. New lists are issued on radiator valves and union elbows, with varying discounts applying to same at present. A slight reduction is also evident on nickel-plated basin supplies.

EASIER PRICES ON CLOSET COMBINATIONS

Toronto.

A reduction of approximately two dollars each is made on closet combinations. This downward revision was foreshadowed in the report contained in the last issue of Sanitary Engineer. The revision applies to all outfits, as listed below. Closet bowls, tanks and seats, however, remain unchanged in price. Following are the revised quotations on these products:

CLOSET COMBINATIONS—	Each
Oak Wood Tank, Oak W. S. Seat and Cover	24 00
Oak Vitro Tank, Oak W.S., Seat and Cover	24 00
Oak Pussyfoot Tank, Oak W. S. Seat and Cover	24 00
Oak Wood Tank Oak P.H., Seat and Cover	24 50
Oak Vitro Tank, Oak P.H. Seat and Cover	24 50
Oak Pussyfoot Tank, Oak P.H., Seat and Cover	24 50
White Vitro Oak Woodstrip Seat and Cover	25 50
White, Pussyfoot Oak Woodstrip, Seat and Cover	25 50
White Pussyfoot, Woodstrip Seat and Cover	25 50
White Vitro Tank, Mahog., P. H. Seat and Cover	26 50
White Pussyfoot, Mahog., P.H. Seat and Cover	26 50
White Vitro or Pussyfoot, oak, P.H. Seat and Cover	26 00
Mahog. Pussyfoot, Mahogany P.H., Seat and Cover	27 00
Vitreous China Tank, Oak P.H. Seat and Cover	27 00
Enam. Iron Tank, Oak P. H. Seat and Cover	28 75
Vitreous China Tank, Mahog., P.H. Seat and Cover	29 00
Enam. Iron Tank Mahog., P. H., Seat and Cover	29 00
ADDITIONS OR REDUCTIONS ON ABOVE—	
If supplied less bond or offset, deduct	0 50
If supplied with reverse trap bowl, add	1 50
If supplied with BOT Reverse Trap bowl Add.	2 25
If supplied with plain syphon jet bowl Add.	7 00

If supplied with N.P. stock cock on supply Pipe, Add.	1 50
If supplied less brass and rubber floor flange and bolts, Deduct	0 60
If supplied less N. P. supply pipe deduct	0 60

CLOSET BOWLS—	
Washdown bowl with spud	10 60
Reverse trap bowl, with spud	12 10
Syphon jet bowl, with spud	17 00
"Richelieu" bowl	10 50
CLOSET TANKS, low down, Oak, Vitro or Pussyfoot tank, with fittings, less seat	
White Vitro or Pussyfoot tank with fittings, flush elbow and supply	15 65
Vitreous china tank with fittings, flush elbow and supply	18 00
Enamelled iron tank with fittings, flush elbow and supply	18 00
CLOSET SEATS—	
Oak post hinge seat and cover	3 85
Oak wood strip seat and cover	3 50
Mahogany finish post hinge seat and cover	4 05
Oak Richelieu seat and cover	2 50

PRICE DECLINE ON STOP AND WASTE COCKS

Toronto.

Through a revision in discounts, quotations on standard roundway and flatway stop and waste cocks are slightly lower this week. The current level is now 56 per cent. off, as compared with the former quotation of 54 per cent. This change affects the T lever and lever handle, while slightly revised discounts also appear on special lines, such as the patent guard or socket head stop, and stop and waste cocks.

No uniform discounts have yet been announced on the new radiator valve price lists. In some cases, the former discount of 58 per cent. is being applied on the new list—which is reproduced elsewhere in this issue—while in other quarters a quotation of 60/10/10 per cent. has appeared. The reason for this is pointed out that the revised list is higher on some sizes.

VALVES—	Per cent
Compression work, standard	45
Fuller work, standard	30
Bath cocks, compression	47
Do., Fuller	25
Flatway stop and wastecoeks, stand'd.	56
Brass steam cocks, standard ½" to 2"	50
Do., 2½" to 3"	43
Globe, angle and check valves, std.	25
Mueller globe, angle and check	25
Mueller composition disc steam valves	33
J.M.T. valves, screwed	10/10
J.M.T. gate valves, screwed	16/10
Jenkins gate or straightway, screwed	16/10
Jenkins, globe, screwed	10/10
Radiator valves, standard	58
Do., removable disc	58
Emco, J. D., rad. valves, screwed	33
Emco swing check, ¾" and 1½"	40
Do., other sizes	33
Webber gate valves, screwed	33
Emco globe valves, std.	25
Emco globe valves, J.D., screwed	33
Basin Cocks—	
No. 0 and 1 Fuller pattern	30
Quick opening No. 3633	50
No. 3623, plain or index handle	34

NEW PRICE LIST ON RADIATOR VALVES AND UNIONS

Toronto.

New lists and discounts are being adopted on radiator valves and union elbows. At the time of going to press, the new lists were available and these are re-produced below, but the discounts applying to same had not yet been definitely decided upon. However, it is expected that a decision will be reached within the next couple of days and the revised quotations will automatically become effective from January 1. In placing these revisions into effect, manufacturers point out that under the former list and discounts some sizes were considered too low in price and others too high. Thus the present change is more in the nature of a readjustment. Following are the new list prices:

STEAM RADIATOR VALVES—	
Composition disc, Without valves.	
No. 32—Size ½ inch, \$3.40; ¾ in., \$3.85; 1 in., \$4.50; 1¼ in., \$5.65; 1½ in., \$7.40; 2 in., \$12.10.	
Composition disc with union—	
No. 34—Size ¾ in., \$4.30. 1 in., \$5.10; 1¼ in., \$6.10; 1½ in., \$8.40; 2 in., \$13.60.	
QUICK OPENING HOT WATER RADIATOR VALVES—	
Without union.	
No. 37—¾ in., \$3.25; 1 in., \$3.90; 1¼ in., \$5.00; 1½ in., \$6.30; 2 in., \$10.50.	
With union—	
No. 39—¾ in., \$3.70; 1 in., \$4.50; 1¼ in., \$5.75; 1½ in., \$7.30; 2 in., \$12.00.	
BRASS UNION ELBOWS—	
No. 41—Size ¾ in., \$2.00; 1 in., \$2.50; 1¼ in., \$3.30; 1½ in., \$4.25; 2 in., \$7.20.	
*Above list prices each—Subject to discount.	

SLIGHT PRICE REDUCTION ON BASIN SUPPLIES

Toronto.

A slight reduction is now made on nickel-plated basin supplies, size ¾ in. These are now quoted at \$1.90 per pair, compared with the former level of \$2.

INCREASED PRICES ON COPPER AND BRASS

Toronto.

The stronger tone which recently developed in the copper markets, both on ingot and semi-finished products, has now resulted in an increase of approximately one cent per lb. on both brass and copper rods, tubing and sheets. This upward tendency was referred to in the last issue of Sanitary Engineer, and was considered as more or less foreshadowed by the recent trend of events in primary

centres. While current business in these goods is described as moderately fair for this season, conditions in some quarters are outlined as better than anticipated and the domestic market tone has remained fairly strong. Following are revised quotations:

BRASS—

Sheets, base, per lb.	0 26
Rods, base, per lb.	0 23
Tubing, base, per lb.	0 31

COPPER—

Rods, base, per lb.	0 29
Soft sheets, plain, 16 oz. and heavier, lb.	0 30
Do., plain tinned, 16 oz. and heavier, per lb.	0 43
Do., polishing, 16 oz. and heavier, lb.	0 36
Tubing ...	0 34
Copper, bus bars, base ...	0 29

CHANGES IN LIST PRICES ON TROUGH

Toronto.

Higher list prices are now generally in effect on the fifteen-inch and eighteen-inch sizes of eavestrough, both ridge roll and valley. The discounts remain unchanged, but an advance of over 25 per cent. is made in the list. The actual extent of the increase, however, is of moderate extent. A similar revision takes place on conductor pipe in the five and six-inch sizes. These list prices are also advanced, but discounts remain the same. Other sizes of both trough and piping are unchanged at the former levels. Elbows also remain unchanged in price. These larger sizes in such products receive only few calls, which is pointed out as one of the reasons for the revision. The new quotations follow:

TROUGH (EAVE)—**O. G. Square Bead—**

	Per 100 ft.	Per 100 ft.
8 inch ...	\$15 90	15 inch..... 34 50
10 inch ...	17 70	18 inch..... 44 00
12 inch ...	21 20	
D. G. Round and Half Round		
8 inch ...	16 90	15 inch..... 35 50
10 inch ...	18 70	18 inch..... 45 00
12 inch ...	22 20	
Less 70 per cent.		

PIPE (CONDUCTOR)—

	Plain, round or corrugated.
	Per 100 ft. in 10 ft. lengths.
2 in., in 10 ft. lengths, list	18 40
3 in., in 10 ft. lengths, list	22 30
4 in., in 10 ft. lengths, list	29 60
5 in., in 10 ft. lengths, list	48 00
6 in., in 10 ft. lengths	58 80
Less 70 per cent.	

ELBOWS (CONDUCTOR)—

2 inch, list	5 25
3 inch, list	6 00
4 inch, list	10 50
5 inch, list	24 00
6 inch, list	29 00
Less 60 per cent.	

INCREASE OF FIVE PER CENT. ON STOVE PRICES

Toronto.

A general readjustment of prices on stoves and ranges is being made involving an approximate increase of five per cent. Manufacturers state that this upward movement has been decided upon in order to take care of higher labor and raw material costs. These latter factors have been pointed out in former issues of Sanitary Engineer. It is also stated that the maximum advance is not more than around seven per cent. Furnaces, both pipe and pipeless, are also affected by the change, as similar conditions prevail in regard to basic elements affecting these products. New prices are at pre-

sent being figured, and will be available within the next few days.

REDUCED PRICES ON CEMENT IN CARLOAD LOTS

Toronto.

As was outlined in a former issue of Sanitary Engineer, cement quotations are now reduced. This decline, however, is only effective on carload lots, at present, the extent of the reduction being around twenty cents per barrel. The change brings the barrel basis in quantity purchases to \$3.45. The revised quotations follow:

CEMENT—

Carload lots, per barrel	3 45
Less carload lots, per barrel, f.o.b. yard ..	4 35
Per barrel, delivered	4 55
Single bags, \$1.15 each; 4 bags to barrel.	
Extra charge of \$1.50 per load on less than 24 bag lots.	
Rebate of 20 cents each for empty bags.	

STEADY TO FIRM TONE IN LEAD AND ZINC GOODS

Toronto.

Business in lead and zinc goods is described as keeping up in fair volume for this season, with prices on a steady to firm basis. Primary metals continue to hold the recent improvement, and this strength is reflected in the finished products to a certain extent, as previously referred to. The termination of the inventory period now leaves the field clearer regarding prospects for the new year's business and an optimistic tone is generally evident. No change has developed from the following local price levels, although some slightly higher levels are now evident in other centres:

LEAD AND ZINC GOODS—

Lead pipe, list, per lb.	0 14
Lead waste pipe, list, per lb.	0 15
Do., over 8 in., list, per lb.	0 16
Lead pipe is subject to a discount of ten per cent.	
Lead traps and bends, less 15 per cent.	
Lead sheets, 4 to 6 lbs., sq. ft. in rolls, lb. \$0.09½—0.10.	
Cut sheets, ½ c to ¾ c lb. extra and cut sheets to size, 1 c lb. extra.	
Solder wire, per lb.	0 31
Do., commercial, lb.	0 25
Do., strictly, lb.	0 23½
Do., guaranteed, lb.	0 26½
Do., wiping, lb.	0 23½
Zinc sheets, per lb.	0 11

FURTHER INCREASE IN PIG IRON QUOTATIONS

Toronto.

Pig iron also registers another increase, the extent of this further rise in price being seventy-five cents per ton. This revision, although of a comparatively minor nature, indicates the trend of the market, and places current quotations at the level of \$32.55. This is the second increase during the last few weeks, and prices have risen from the mark of \$30.80 to \$31.80, and now have attained the above figure, \$32.55. It is pointed out that quotations in primary centres have been on the upward grade and this condition is reflected in domestic circles, together with more interest and a seasonal degree of activity. Coke prices also remain high. Just how far this development will affect the trend of finished products will be watched with interest.

NO CHANGE IN DISCOUNT ON CAST IRON FITTINGS

Toronto.

Conditions with regard to cast iron fittings have been recently adjusted and the contemplated revision in prices on these products is now in abeyance. While the opinion was formerly expressed by several distributors that some easier levels would most likely appear in the early part of the new year, it is pointed out that any such changes would have been in the nature of price shading, as current market conditions, as well as the raw material situation, hardly warrant any declines at this period. The former discount of 27 per cent. off remains unchanged. Other quotations are as follows:

PIPE FITTINGS—

Per Cent.

Cast iron fittings	27
Plugs, cast iron	27
Do., solid	27
Do., countersunk	27
Bushings, malleable	30
Do., cast	30
Unions, ¼ in. to 2 in.	45
Do., ½ in., 2¼ to 4 in.	45
Flanged unions, std.	27
Flanged fittings	30
Dart unions, blk., ¼ to 2 in.	34
Do., ½ in., 2¼ to 4 in.	23
Do., galvd., add to black	30
Nipples, blk., and galvd. ½ to 4 in. close and short	55
Do., 4½ in. and larger	45
Do., long, ½ in. to 4 in.	60
Do., 4½ in. and larger	50
Do., running thread	35
Couplings, 4 in. and under	25
Do., 4½ in. and larger	5

MALEABLE FITTINGS—

New piece list, effective June 1, 1922.
1 in. elbow, \$0.32, \$0.53; 2 in. elbow, \$1.05, \$1.70; 1 in. tee \$0.43, \$0.70; 2 in. tee, \$1.45, \$2.40; 1 in. coupling, \$0.33, \$0.53; 1 in. locknut \$0.15, \$0.23 Discounts—Class A, less 60 per cent. Classes, B and C. less 70 per cent.

SEASONAL QUIETNESS EVIDENT IN CORRUGATED

Toronto.

Only moderate trade is recorded in corrugated sheets, the seasonal quietness being generally evident. These products remain on a steady to firm basis, no change having been made in either list prices of discount. Another brisk season, however, is expected, with indications of increased building activity as soon as the weather permits. Following are current quotations:

CORRUGATED SHEETS—

Per 100 Sq. Ft.

No. 28 gauge	6 50
No. 26 gauge	7 00
No. 26, U. S. gauge	8 00
No. 24 gauge	9 00
No. 22 gauge	11 00
No. 20 gauge	12 50
No. 18 gauge	16 50
Less 10 per cent.	
Lighter than 24 gauge and wider than 27 inches, \$0.75 per square extra.	

UPWARD TENDENCY REMAINS IN COTTON WASTES

Toronto.

While no changes have yet developed with regard to cotton waste prices, the opinion still prevails that some further increases are pending and will most likely become effective during the ensuing weeks. One manufacturer stated to Sanitary Engineer that, while the contemplated revised levels would not be known this week, it was quite possible that slightly higher quotations will ap-

pear, especially if the upward trend of raw cotton continues to be reflected in this market. The present levels are as follows:

COTTON WASTES—

Cream, polishing	0 19
White, XXX	0 19
XX	0 17
X	0 16
XC	0 14½
XXX, extra	0 17
XX, grand	0 16
XLGR	0 15
X, Empire	0 13½
X press	0 12
Colored, No. 1	0 13½
No. 17	0 12½
No. 1A	0 11½
No. 1B	0 10½
Fancy	0 14
Lion	0 12½
Standard	0 11
Popular	0 09½
Keen	0 08

Above lines subject to trade discount for quantity.

GOOD PROSPECTS FOR ENAMELED WARE TRADE

Toronto.

No developments have been recorded in enameled ware products, the former quotations still being in effect on these lines. Lists and discounts are unchanged, although a moderate reduction is being made on closet outfits. It is noted that in some quarters of the city a start has already been made on the 1923 building program, while in other cases some interior finishing is being done on buildings which were only partially completed last year. All these factors are pointed out as assisting towards current activity and good prospects for the ensuing months.

ENAMELED WARE—

Enameled Iron Baths, 3" roll rim, 4 ft., 4 ft. 6 in., 5 ft.	51 40
Do., 5½ ft.	57 10
Lavatories—	
17x10" Apron F139 or P1045	15 30
18x24" Apron F154 or P3845 or P3847	23 60
18x21" Apron F169 or P4205	17 60
18x21" Roll Rim, F197, F199 or P4655-6	15 40
17x19" Roll Rim, F241 or P4345	12 60
Sinks, Roll Rim, 16x24 in.	18 10
Do., 18 x 30 in.	23 00
Do., 20 x 30 in.	24 70
Sinks, Flat Rim—	
16x24	\$7 60 \$7 70 \$7 80
18x30	8 50 8 60 8 70
20x30	9 70 9 80 9 90
Above prices, list, less 33 1-3 per cent.	
All steel enamel baths, 4 and 4½ ft.	\$14.00
Do., 5 ft.	15 00
Do., 5½ ft.	16 75
Steel bath quotations only are net.	

RADIATORS REMAIN ON FIRM PRICE TREND

Toronto.

While some rumors have been in evidence regarding the possibility of slightly advanced quotations on radiators in the near future, no development in this direction has been recorded. Manufacturers state that the prospects for the year are good and brisk business is anticipated. No change is being made in prices or discounts, it being pointed out that although pig iron is again firming up in price, this condition is not affecting the market tone unduly, as no revision was made in quotations while pig iron was recently fluctuating. Raw materials are admittedly, however, on a firm trend, which is reflected to some extent on the finished products. Current quo-

tations are unchanged at the following levels:

RADIATORS—

Revised radiator list prices are for 1, 2, 3, 4 and 5-column radiators per square foot.
38 in., \$1; 32 in., \$1.10; 30 in., \$1.15; 26 in., \$1.20; 23 in., \$1.26; 22 in., \$1.30; 20 in., \$1.36; 18 in., \$1.40; 16 in., \$1.50; 14 in., \$1.55; 13 in., \$1.60.

Discount on 2, 3, 4 and 5 column standard sizes, 55 per cent. for water and 56 per cent. for steam.

Discount on 1-column standard size, and 2, 3, and 4-column hospital sizes 47 per cent for water and 48 per cent for steam.

Discounts on 1-column hospital size, water 33 per cent.; steam, 34 per cent.

Wall radiators—5 ft., \$1.15; 6 ft., \$1.10; 7 ft., \$1.05; 9 ft., \$1.05; 12 ft., \$1.05. Discount 52 per cent.

BOILERS—

Water:

Round 60 per cent. off list. Square 20 per cent. off list.

Steam:

Round, 25 per cent. off list; Square, 15 per cent. off list.

DELIVERY OF PIPING NOW ON BETTER PLANE

Toronto.

"Very good for this time of the year," is the general expression regarding current business in wrought pipe. The delivery situation, referred to in former reports, is now described as being a little better, but it is certainly not considered as easy. The market remains on a very firm basis, with the call for piping in primary centres being such as to indicate that heavier requirements are being anticipated for the coming months. List No. 57 continues to govern the local market.

WROUGHT PIPE

Price List No. 57. November, 1922.
Standard Butt-weld Pipe S/C

Size	Steel Blk.	Gen. Wrot. Iron Galv. Blk. Galv.
¼ in.	6.00	8.00
½ in.	3.96	6.00
¾ in.	3.96	6.00
1 in.	5.02	6.53
1¼ in.	6.10	7.82
1½ in.	8.67	11.22
1¾ in.	11.73	15.18
2 in.	14.03	18.15
2½ in.	18.87	24.42
3 in.	29.84	38.61
3½ in.	39.02	50.49
4 in.	50.60	64.40
4 in.	59.95	76.30

Standard Lap-weld Pipe S/C

Size	Steel Blk.	Gen. Wrot. Iron Galv. Blk. Galv.
2 in.	22.20	27.75
2½ in.	32.76	41.54
3 in.	42.84	54.32
3½ in.	51.52	65.32
4 in.	61.04	77.39
4½ in.	71.12	90.17
5 in.	82.88	105.08
6 in.	1.08	1.36
7 in.	1.40	1.79
8 in.	1.48	1.88
8½ in.	1.70	2.16
9 in.	2.07	2.62
10 in.	1.92	2.43
10½ in.	2.47	3.13

RANGE BOILER TRADE BETTER THAN EXPECTED

Toronto.

In range boilers seasonal quietness prevails. The present volume of trade, however, is stated to continue somewhat better than usually expected for this time of the year. The undertone of the market remains firm, and little change in this direction is anticipated. No revisions have been made in either lists or discounts, it being pointed out that raw materials and production costs are approximately on the same basis as when

the last revision was made, which brought the following quotations into effect:

RANGE BOILERS—

Size.	List Price.
6-gallon	\$13 50
12 to 15 gallon	14 00
18-gallon	15 00
25-gallon	16 50
30-gallon	17 50
35-gallon	20 50
40-gallon	22 75
52-gallon	38 00
60-gallon	60 75
82-gallon	74 00
100-gallon	103 00
120-gallon	117 00
144-gallon	164 00
168-gallon	187 00
192-gallon	210 00
Discounts, Standard weight, 40 per cent.	
Extra heavy, 30 per cent.	

FIRMNESS IS KEYNOTE IN SOIL PIPE MARKET

Toronto.

Firmness is described as the prevailing note in the trend of soil pipe fittings. This market remains on a steady tone, with current business keeping up fairly well for this season. While trade is moderate in volume for this time of the year, the prospects for increased activity in building operations during the coming spring and summer is being anticipated by manufacturers and distributors. Discounts remain unchanged as follows:

SOIL PIPE—

2 inch	Less 33 1-3%
3 inch	Less 33 1-3%
4 inch	Less 33 1-3%
5 and 6 inch	Less 33 1-3%
8 inch	net

FITTINGS—

2 to 6 inch	Less 45 per cent.
8 inch fittings	net.

TIN PLATE PRICES REMAIN FIRM AND UNCHANGED

Toronto.

In the tin plate market, prices generally remain firm and unchanged. Domestic levels are steady, while it is noted that Welsh tin plate prices have registered slight increases. In the U. S. market the quotations for the first quarter of 1923 are being strictly adhered to, and there is apparently nothing to offer earlier than second quarter.

PLATES, CANADA—

	Per box
Ordinary, 52 sheets	4 90
Dull, 60 sheets	5 00
Blued and oiled, boxes 52's	5 50
Do., boxes, 60's	5 60

WELSH CANADA PLATES—

Cold polished, 18 x 24, 60's	6 50
Cold polished, 18 x 24, 60's	6 50

PLATES, COKE TIN—

IC, 20 x 28, 112 sheets	12 75
IX, 20 x 28, 112 sheets	15 00
IX, 20 x 28, 56 sheets	8 50

PLATES, CHARCOAL TIN—

IX, 20 x 28, 112 sheets	10 00
IXX, 20 x 28, 56 sheets	12 00

PLATES, TERNE—

IC, 14 x 20, 112 sheets	12 00
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BOILER TUBE BUSINESS IN NORMAL STATE

Toronto.

There is a reasonable amount of business in boiler tubes at the present time, according to the opinion expressed this week by distributors. Trade is more or less in a moderate condition at this period, but one factor of some importance is that competition is not so keen as was formerly the case, and this is described as an indication that distributors have new supplies of higher-priced



Mueller Drum Traps

If you could buy a better Drum Trap from a concern you know is reliable, for the same price as the ones you now use, you would be likely to consider the matter favorably at least.

Mueller for many years has been making Quality Goods only. When a new product is added to the line, certain tests have to be passed before the name "**MUELLER**" is allowed on it. In the case of Mueller Drum Traps, each one is tested under pressure before leaving factory.

4"x 8" is fitted with brass cover with sunken square as shown above, or with raised square on cover if desired.

2"x 6" size is furnished with extension cover as illustrated.

Your orders will be given preferred attention.

H. MUELLER MFG. CO., LIMITED, SARNIA, ONT.

Water, Plumbing and Gas Brass Goods and Tools.

American Factory at Decatur, Illinois, U. S. A. Branches, New York and San Francisco

Mueller Metals Co., Port Huron, Mich., Makers of "Red Tip" Brass Rod; Brass and Copper Tubing; Forgings and Castings in Brass, Bronze and Aluminum; also Screw Machined Products.

stocks on hand. No changes have developed from the following levels, which are representative of current transactions:

BOILER TUBES—

Size	Seamless.	Lap-weld
¾ inch	\$19 00	\$
1 inch	20 00	. . . .
1¼ inch	22 00	. . . .
1½ inch	24 00	. . . .
1¾ inch	24 00	23 00
2 inch	22 00	19 00
2¼ inch	24 00	21 50
2½ inch	27 00	23 50
3 inch	34 00	28 50
3¼ inch	36 00	33 00
3½ inch	38 00	33 00
4 inch	50 00	42 00

SCRAP MARKETS NOW SHOW FIRMER TENDENCY

Toronto.

Domestic waste material markets are looking much better than is usual at this time of the year. Local dealers report that there is more than the usual amount of business around, and prices have been showing strength.

Dealers are showing quite an active interest in scrap metals, particularly copper, despite the fact that consumers have generally held off from the market. White metals are firm, but quiet.

Scrap iron has not shown any weakness. The trend of things seems to be toward active buying, and higher prices.

Scrap rubber has maintained its recently advanced levels, although demand has fallen off.

The following are the usual averages of dealers' buying prices for large quantities:

SCRAP MATERIALS—

Scrap Iron		
Heavy melting steel	11 00	
Scrap pipe	6 00	
Steel turnings	10 00	
Malleable scrap	10 00	
Rails scrap	11 00	
Net tons—		
No. 1 cast	18 00	
Stove plate	14 50	
Car wheels (std)	14 00	
Scrap Metals		
Heavy copper wire	11 00	
Light copper	9 25	
No. 1 composition	9 00	
Red brass turnings	7 00	
Light brass	4 00	
Heavy yellow brass	5 25	
Heavy lead	4 50	
Tea lead	3 00	
Scrap zinc	4 00	
Scrap Rubber		
Boots and shoes	2 25	2 75
High rubber boots	1 50	1 75
Auto tires	0 25	0 50
Solid tires	0 60	1 00

UNUSUAL FEATURES IN SHEET MARKET

Toronto.

Current trade in galvanized sheets is now of a quiet nature. The market in general is considered to be upon a firm basis, although developments indicate a somewhat complicated condition in some quarters at the present time. The appearance of an extra charge for deliveries smaller than a given quantity, indicates the strength of primary sheet markets. On the other hand, slightly lower levels have appeared in some quarters, this being described as purely a local effort to get business during the quiet period. It is pointed out that deliveries are still very much delayed and by the spring it is anticipated that deliveries

may be even further delayed owing to the anticipated increased volume of business. That such price levels will also be revised upward again in the near future is the general opinion. The following quotations represent the average current values:

GALVANIZED SHEETS—

	Premier and Apollo
10½ oz.	6 65
U. S. 28 base	6 25
U. S. 26 base	5 95
22 and 24	5 80
18 and 20	5 65
16	5 50
12 and 14	5 35
Queen's Head	
28 gauge base	7 15
26	6 75
24	6 45
22	6 30
Fleur de Lis	
28 gauge, base	6 90
26	6 50
24	6 20
22	6 05

An extra 40c. per 100 lbs. is charged for Keystone and Premier bands copper-bearing sheets. An extra is now charged on galvanized sheets. 10½ oz. and 28 ga., when shipped out in sheets 3 feet wide. The extra charged over prices shown in 20c. per 100 pounds.

BLUE ANNEALED SHEETS—

10 gauge, base	4 20
12 gauge	4 25
14 gauge	4 30
16 gauge	4 35

BLACK SHEETS—

18-20 gauge	4 90
22-24 gauge	4 95
26 gauge	5 00
28 gauge	5 10

A charge of 25c. per 100 lbs. is made for less than case lots. An extra 10c. per 100 lbs. is also charged on sheets 26 in. wide.

GOOD OUTLOOK IN ASBESTOS PRODUCTS

Toronto.

Current trade in asbestos products is described as not very brilliant, but the outlook is good and the improvement recently recorded is being maintained. A firmer tone is evident on both domestic and primary centres, with local quotations remaining at the recent higher levels. Present discounts follow:

ASBESTOS PRODUCTS—

Pipe Covering—	
Air cell, 4 ply	50 per cent. off list.
Air cell, 3 ply	55 per cent. off list.
Air cell, 2 ply	57½ per cent. off list.
Boiler Covering	\$1.50 — \$2.00 per bag.
Asbestos Sheathing	\$3.00 per 100 lbs.
Magnesia pipe covering	less 35 per cent.

UPWARD TREND IN BAR IRON AND STEEL

Toronto.

An improved condition is generally evident in the steel markets. That some higher prices on bar iron may develop in the near future is the current anticipation in primary centres, and this upward trend may result in local quotations on bar iron and steel firming up to the \$3.40 level, according to local distributors who are naturally watching closely the current developments at production centres. Present levels hover between \$3.25 and \$3.40, the former figure being most general, but the latter price being quoted in some cases according to specifications, delivery and the size of the order. Any firming up to this higher level, therefore, would practically constitute an advance of fifteen cents per cwt. Producers in the United States claim that existing prices represent a hard-

ship, as the present margin is considered insufficient to cover costs and afford a reasonable profit. Accordingly, there has appeared a tendency to advance quotations \$2 or \$3 per ton, and the opinion prevails in some quarters that should there develop any increase in current activity, such an advance will probably become effective. Local levels remain unchanged as follows:

IRON AND STEEL—

Mild steel bars, base	3 25	3 40
Mild steel bands, 3-16 base	3 75	3 90
Bar iron, base	3 25	3 40
Angle, iron base	3 35	3 50
Horseshoe iron	3 90	
Tire steel	3 50	
Spring steel	7 00	8 00
Sleigh shoe steel	3 40	
Cold drawn steel	4 50	
Toe caulk iron	4 10	
Hoop Steel	4 75	
Norway iron	12 50	
Crucible cast steel	28 00	
Mining Drill steel	18 50	
Cast tool steel, high grade	30 00	
Cast tool steel, medium	18 00	

HOW PLUMBERS HANDLE THE RECEIPT TAX

(Continued from page 11)

one time which is over \$10.00, the receipt tax would apply as the payment is over \$10.00 as provided by the Act."

2. "In the case where a sale is made in excess of \$10, the original counter sales slip being handed to the purchaser, the stamp cannot be attached to the carbon copy, or the carbon copy merely marked 'paid' and retained in the merchant's possession without having stamp affixed. This would not conform to the Act which requires that the receipt given the customer must bear the stamp."

3. "Where a customer makes purchases on behalf of others, the total amount of purchase being over \$10 the tax applies as the payment is in excess of \$10."

4. "Where a customer makes a purchase of say \$7 and pays the bill and later makes a purchase of \$5.00 and the merchant is asked for a receipt covering the total, amounting to \$12, tax applies even though each individual sale was less than \$10."

FAVOR PROPOSAL

(Continued from page 12)

ture. Thus, any government tax that they were compelled to deduct from these discounts by either of these classes of trade, would seem to us to reduce their return on their efforts to a margin that was far below a fair amount for them to receive. So, to collect this sales tax from the consumer, it would be necessary for us to change our system of selling to the extent possibly of saying that our products were sold at \$2.00 plus sales tax. At the present time all prices on our products are advertised at a certain set figure to the consuming public, and they do not anticipate paying any additional expenses for taxes when they receive their product.

The Everlasting Veneer Toilet Seat

Strong, Clean Hygienic

This reliable, dependable toilet seat is made of 7 and 9-ply, air-seasoned wood veneer, held together by our special wood cement. This cement is proof against heat, cold or dampness. The veneering is distributed according to the strain and wear required of the different parts. The Everlasting Seat will never crack, warp or split.



It is a splendid seat for use in cold, damp basements where closets must be installed. The Everlasting Toilet Seat will meet, and successfully resist, these severe conditions of moisture, changing temperature, etc.

**Canadian
Veneering Company,
Incorporated**

Acton Vale

Quebec



Are You Chasing Prospects?

Most good merchant plumbers are hotfoot after Gas Water Heater business just now.

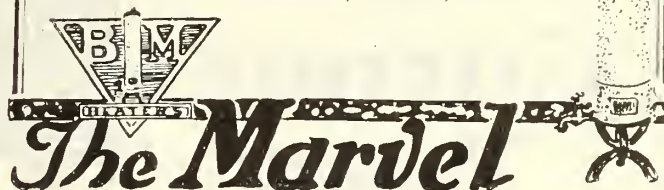
But it's hardly worth while selling some heaters; your profit is all eaten up by return trips and adjustments.

The Marvel—built in one piece—is simple and inexpensive to install and once installed it stays put. You keep all the profit. With its low cost, high efficiency, economy of gas consumption and neat appearances, the Marvel is easily sold—and, moreover, it stays sold.

Sold Only Through Plumbers.

Bastian Morley Limited

125 Hanson St., Toronto, Ont.



WHAT IS YOUR ADVERTISING DOLLAR BUYING?

High prices of materials and increased overhead have made necessary a stricter economy along mercantile lines.

Advertising should be considered as well as the commodities in which merchants deal.

By choosing only those publications whose circulation is accurately measured, you not only practise economy in your advertising, but are assured that your money is buying a definite quantity of circulation.

The Sanitary Engineer circulation is measured by the Audit Bureau of Circulations. Advertising placed in its columns is an economical investment.

THE TRADE

*Is Respectfully Cautioned
to specify*

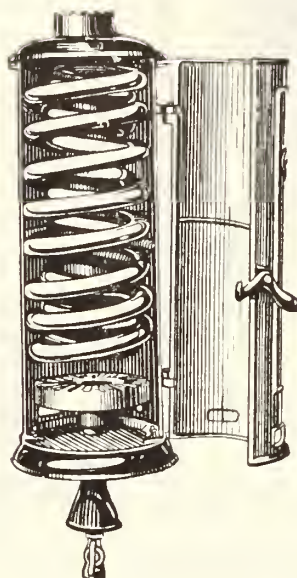
RIVETED RANGE BOILERS

Made by the old reliable

**TORONTO HARDWARE
MFG. CO., LIMITED**

Gurney

**Make
1923
a
Gurney
Year**



**Make
1923
a
Gurney
Year**

Gurney No. 26 Water Heater

Gurney Water Heaters have in the past year entrenched themselves strongly in the public favor. But—

There are still innumerable potential owners of Gurney Water Heaters. Builders and prospective builders of homes are sure prospects for this proven, economical household necessity.

Thousands of settled homes would buy the efficient Gurney Heater if they knew of its easy installation and its year-round utility.

You are on the brink of a big year in Gurney Water Heaters. Develop this profitable line to the utmost and make 1923 a "Gurney" year.

The Gurney Foundry Co. Limited

Cooking and Heating Appliances

TORONTO

MONTREAL

WINNIPEG

VANCOUVER

The only product which has anything to fear from publicity through the pages of this journal, is that which will not stand intelligent inspection by the Sanitary and Heating Engineers of Canada.

That is why the best lines are to be found in the advertising columns of this paper.



Classified Buyers Guide

AIR LINE SYSTEMS

C. A. Dunham Co., Ltd., Toronto.
United Brassfounders & Engineers, Ltd., Manchester, Eng.

ALUMINUM CASTINGS

Fittings, Limited, Oshawa.
Canada Metal Co., Ltd., Toronto.

AIR VALVES

Beaton & Caldwell Mfg. Co., New Britain, Conn.
W. H. Cunningham & Hill, Ltd., Toronto.
C. A. Dunham Co., Ltd., Toronto.
Empire Mfg. Co., Ltd., London and Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
J. H. Williams Co., Brooklyn, New York.
United Brassfounders & Engineers, Ltd., Manchester, Eng.
Wallaceburg Brass & Iron Mfg. Co., Ltd., Wallaceburg, Ont.
Wolverine Ltd., Toronto, Ont.

BATHROOM FITTINGS

Canada Metal Co., Ltd., Toronto.
Gendron Mfg. Co., Toronto.

BENDING SPRINGS

W. H. Cunningham & Hill, Ltd., Toronto.

BOILERS, STEAM OR HOT WATER

Gurney Foundry Co., Limited, Toronto.
Lord & Burnham Co., Ltd., Toronto.
Spencer Heater Co., Ltd., Toronto, Ont.
Warden King, Ltd., Montreal.

BOILER FEED REGULATORS

Empire Mfg. Co., London and Toronto.
C. A. Dunham Co., Ltd., Toronto.
Grant E. Cole Co., 23 River Street, Toronto.

BOILER STANDS

Fittings, Limited, Oshawa.

BOLTS, EYE

J. H. Williams & Co., Brooklyn, N. Y.

BOLTS AND NUTS

Fittings Limited, Oshawa.

BRASS GOODS, VALVES, ETC.

Canadian Brass Co., Ltd., Galt, Ont.
Canada Metal Co., Ltd., Toronto.
C. A. Dunham Co., Ltd., Toronto.
Empire Mfg., Co., Ltd., London and Toronto.
Fittings, Limited, Oshawa.
Galt Brass Co., Limited, Galt.
Kerr Engine Co., Ltd., Walkerville.
James Morrison Brass Mfg. Co., Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
Standard Sanitary Mfg. Co., Ltd., Toronto.
Hamilton.
United Brassfounders and Engineers, Ltd., Manchester, Eng.
Wallaceburg Brass & Iron Mfg. Co., Ltd., Wallaceburg, Ont.
Wolverine Ltd., Toronto, Ont.
W. H. Cunningham & Hill, Ltd., Toronto.

BRASS PIPE AND TUBE

Canada Metal Co., Ltd., Toronto.
Empire Mfg. Co., Ltd., London and Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
United Brassfounders & Engineers Ltd., Manchester, Eng.
Wolverine, Ltd., Toronto, Ont.

CASTINGS

Canada Metal Co., Ltd., Toronto.
Fittings, Limited, Oshawa.

CELLAR DRAINERS

Galt Brass Co., Limited, Galt.
Empire Mfg. Co., Ltd., London and Toronto.
James Morrison Brass Mfg. Co., Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
Standard Sanitary Mfg. Co., Ltd., Toronto, and Hamilton.

CIRCULATORS

J. H. Williams & Co., Brooklyn, N. Y.
Grant E. Cole Co., 23 River Street, Toronto.

CHAINS

Fittings, Limited, Oshawa.
J. H. Williams & Co., Brooklyn, N. Y.

CLOSETS

Canada Metal Co., Ltd., Toronto.
Empire Mfg. Co., London and Toronto.
Galt Brass Co., Limited, Galt.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
Standard Sanitary Mfg., Co., Ltd., Toronto.
Hamilton.

CONDENSATION UNITS

C. A. Dunham Co., Ltd., Toronto, Ont.
The Westco Pumps, Limited, Toronto.
Grant E. Cole Co., 23 River Street, Toronto.

COUNTRY RESIDENCE EQUIPMENTS

Empire Mfg. Co., Ltd., London and Toronto.
H. Mueller Mfg. Sarnia, Ont.

COUPLINGS

Canada Metal Co., Ltd., Toronto.
Fittings Limited, Oshawa.

DAMPER REGULATORS

C. A. Dunham Co., Ltd., Toronto.

DRAINAGE FITTINGS

Canada Metal Co., Ltd., Toronto.
Empire Mfg. Co., Ltd., London and Toronto.
Fittings Limited, Oshawa.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
Standard Sanitary Mfg. Co., Ltd., Toronto.
Hamilton.
United Brassfounders & Engineers, Ltd., Manchester, Eng.
Warden King, Ltd., Montreal.

DRAIN PIPE SOLVENT

W. H. Cunningham & Hill, Ltd., Toronto.
Hercules Chemical Co., Inc., New York City.

DRINKING FOUNTAINS

Canada Metal Co., Ltd., Toronto.
Empire Mfg. Co., Ltd., London and Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
Standard Sanitary Mfg., Co., Ltd., Toronto.
Hamilton.

DROP FORGINGS

J. H. Williams & Co., Brooklyn, N.Y.

EJECTORS, STEAM

Kerr Engine Co., Walkerville.
United Brassfounders & Engineers, Ltd., Manchester, Eng.

ENAMELWARE

Amherst Foundry Co., Ltd., Amherst, N.S.
Canada Metal Co., Ltd., Toronto.
Empire Mfg. Co., Ltd., London and Toronto.
Galt Brass Co., Limited, Galt.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
Standard Sanitary Mfg. Co., Ltd., Toronto.
Hamilton.

Port Hope Sanitary Mfg. Co., Ltd., Port Hope.
Standard Sanitary Mfg. Co., Ltd., Toronto.

ELECTRIC PUMPING MACHINERY

Empire Mfg. Co., Ltd., London and Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.

EXPANSION TANKS

Toronto Hardware Mfg. Co., Ltd., Toronto.

FITTINGS

Canada Metal Co., Ltd., Toronto.
Empire Mfg. Co., Ltd., London and Toronto.
Fittings Limited, Oshawa.
James Morrison Brass Mfg. Co., Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
Standard Sanitary Mfg. Co., Ltd., Toronto.
Hamilton.
United Brassfounders & Engineers, Ltd., Manchester, Eng.
Warden King, Ltd., Montreal.

FLUSHMETERS

Canada Metal Co., Ltd., Toronto.
Empire Mfg. Co., Ltd., London and Toronto.
Galt Brass Co., Ltd., Galt.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
Standard Sanitary Mfg. Co., Ltd., Toronto.
Hamilton.
Wolverine Ltd., Toronto, Ont.

FLOOR AND CEILING PLATES

Beaton & Caldwell Mfg. Co., New Britain, Conn.
W. H. Cunningham & Hill, Ltd., Toronto.
Fittings, Limited, Oshawa.
Wolverine Ltd., Toronto, Ont.
Empire Mfg. Co., London and Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.

FURNACES

Gurney Foundry Co., Limited, Toronto.
Warden King, Ltd., Montreal.
Spencer Heater Co., Ltd., Toronto.
Hamilton Stove & Heater Co., Hamilton.
Burrow, Stewart & Milne, Hamilton.
Hall-Zryd, Hespeler, Ont.
Vulcan Co., London, Ont.

GASOLINE ENGINES

Empire Mfg. Co., Ltd., London and Toronto.

GAS WATER HEATERS

Bastian-Morley, Limited, Toronto.
Empire Mfg. Co., Ltd., London and Toronto.
James Morrison Brass Mfg., Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
Standard Sanitary Mfg. Co., Ltd., Toronto.
Hamilton.

W. H. Cunningham & Hill, Ltd., Toronto.

GALVANIZING

Fittings, Limited, Oshawa.

HEAT GENERATORS

Galt Brass Co., Galt, Ont.
Grant E. Cole Co., 23 River Street, Toronto.

HEATING APPARATUS

C. A. Dunham Co., Ltd., Toronto.

HEATERS

Canada Metal Co., Ltd., Toronto.
Grant E. Cole Co., 23 River Street, Toronto.
Lord & Burnham Co., Ltd., Toronto.
Warden King, Ltd., Montreal and Toronto.
W. H. Cunningham & Hill, Ltd., Toronto.

HEATING SYSTEMS

C. A. Dunham Co., Ltd., Toronto.
Grant E. Cole Co., 23 River Street, Toronto.

HOIST HOOKS

J. H. Williams & Co., Brooklyn, N.Y.

JAPANNING

Fittings, Limited, Oshawa.

KEROSENE WATER HEATERS

W. H. Cunningham & Hill, Ltd., Toronto.

LAUNDRY TUBS

The Canada Metal Co., Ltd., Toronto.
Standard Sanitary Mfg. Co., Ltd., Toronto.
Hamilton.

LEAD

Canada Metal Co., Ltd., Toronto.
Empire Mfg. Co., Ltd., London and Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
Standard Sanitary Mfg. Co., Ltd., Toronto.
Hamilton.

MACHINISTS' TOOLS

J. H. Williams & Co., Brooklyn, N. Y.

MALLEABLE IRON CASTINGS

Gurney Foundry Co., Limited, Toronto.
Fittings, Limited, Oshawa.

MACHINE BOLTS AND NUTS

Fittings, Limited, Oshawa.

MIXING VALVES

Canada Metal Co., Ltd., Toronto.
Empire Mfg. Co., Ltd., London and Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
Standard Sanitary Mfg. Co., Ltd., Toronto.
Hamilton.
Port Hope Sanitary Mfg. Co., Ltd., Port Hope.

PACKING

Grant E. Cole Co., 23 River Street, Toronto.

RADIATOR FOOT RESTS

Empire Mfg. Co., Ltd., London and Toronto.
Wolverine Ltd., Toronto, Ont.
W. H. Cunningham & Hill, Ltd., Toronto.

PACKLESS RADIATOR VALVES

Kerr Engine Co., Walkerville.
C. A. Dunham Co., Ltd., Toronto, Ont.

PIPE AND RADIATOR HANGERS

Beaton & Caldwell Mfg. Co., New Britain, Conn.

W. H. Cunningham & Hill, Ltd., Toronto.
Healy-Ruff Company, Minneapolis, Minn.

PIPE, BLACK AND GALVANIZED

Canada Metal Co., Ltd., Toronto.
Canadian Tube and Iron Co., Ltd., Montreal.
Empire Mfg. Co., London and Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
Standard Sanitary Mfg. Co., Ltd., Toronto.
Hamilton.

PIPE CLEANSER

Chamberlain Desolve Co., Ltd., Toronto.
Empire Mfg. Co., Ltd., London and Toronto.
Hercules Chemical Co., Inc., New York City.
Wolverine, Ltd., Toronto, Ont.
W. H. Cunningham & Hill, Ltd., Toronto.

PIPE JOINT COMPOUNDS

Wolverine, Ltd., Toronto, Ont.
Empire Mfg. Co., Ltd., London and Toronto.
W. H. Cunningham & Hill, Ltd., Toronto.



Few people realize the tremendous selling power of classified advertising or the exceptional opportunity which it offers.

Hundreds of Sanitary Engineers to-day are carrying equipment for which they have no further need, yet many others could use this same equipment to good advantage and would be glad to buy at a fair price, if they but knew of it.

How to get buyer and seller together—that's the question. The answer is—SANITARY ENGINEER classified advertising service. Thousands of Sanitary Engineers throughout the country read the classified advertisements every issue. That's why they produce results surely and quickly.

If you want to buy, sell or exchange equipment.

If you want to sell or exchange your store.

If you want to buy a store.

If you are looking for a location.

If you need a competent journeyman.

If you are seeking a position.

In fact if you wish to buy, sell or exchange anything used in a plumbing and steamfitting shop or for any reason desire to quickly get in touch with other Sanitary Engineers, use SANITARY ENGINEER'S classified advertising service. The charge is ridiculously low—\$1.50 for twenty-five words, 5 cents for each additional word.

**Look For The Classified Column
on Page 46**

PIPE, SOIL AND FITTINGS

Anthes Foundry Co., Toronto and Winnipeg.
Canada Metal Co., Ltd., Toronto.
Empire Mfg. Co., Ltd., London and Toronto.
Fittings, Limited, Oshawa.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
Standard Sanitary Mfg. Co., Ltd., Toronto.
Hamilton.
Toronto Hardware Mfg., Co., Toronto.
Warden King, Ltd., Montreal.

PIPE THREADING TOOLS AND MACHINERY

Borden Canadian Co., Toronto.
A. B. Jardine & Co., Hespeler.
W. H. Cunningham & Hill, Ltd., Toronto.

PIPE WRENCHES

J. H. Williams Co., Brooklyn, New York.
W. H. Cunningham & Hill, Ltd., Toronto.

PLUMBERS' TOOLS

J. H. Williams & Co., Montreal, Que.
W. H. Cunningham & Hill, Ltd., Toronto.

PNEUMATIC WATER SUPPLY TANKS

Empire Mfg. Co., London and Toronto.

PORCELAIN WARE

Canada Metal Co., Ltd., Toronto.
Empire Mfg. Co., London and Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.

PUMPS

W. H. Cunningham & Hill, Ltd., Toronto.
Grant E. Cole Co., 23 River Street, Toronto.
H. Mueller Mfg. Co., Limited.
The Westco Pumps Limited, Toronto.
United Brassfounders & Engineers, Ltd.,
Manchester, Eng.

PUMPING SYSTEMS, AUTOMATIC

Canada Metal Co., Ltd., Toronto.
H. Mueller Mfg. Co., Limited.
The Westco Pumps, Limited, Toronto.
Beaton & Cadwell Mfg. Co., New Britain, Conn.

RADIATORS

Gurney Foundry Co., Limited, Toronto.
Lord & Burnham Co., Ltd., Toronto.
Warden King Ltd., Montreal.

RADIATOR HANGERS

Healy Ruff Company.

RADIATOR NIPPLES

Fittings, Limited, Oshawa.

RADIATOR TRAPS (STEAM)

C. A. Dunham Co., Ltd., Toronto.
Grant E. Cole Co., 23 River Street, Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
United Brassfounders & Engineers Ltd., Man-
chester, Eng.

RIVETS

Fittings, Limited, Oshawa.

RANGE BOILERS

Standard Sanitary Mfg. Co., Ltd., Toronto.
Hamilton.

The Canadian John Wood Mfg. Co., Toronto.
Toronto Hardware Mfg. Co., Toronto.

REDUCING PRESSURE VALVES

Grant E. Cole Co., 23 River Street, Toronto.
C. A. Dunham Co., Ltd., Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
United Brassfounders & Engineers, Ltd.,
Manchester, Eng.

RETURN TILTING TRAPS

Grant E. Cole Co., 23 River Street, Toronto.

ROOF FLANGES AND FLASHINGS

Canada Metal Co., Ltd., Toronto.
Empire Mfg. Co., London and Toronto.
Standard Sanitary Mfg. Co., Ltd., Toronto.
Hamilton.

SEPTIC TANK VALVES AND SYPHONS

Anthes Foundry Co., Ltd., Toronto.
Empire Mfg. Co., London and Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.

SINK BRACKETS

Fittings, Limited, Oshawa.

SOCKETS, WIRE ROPE

J. H. Williams & Co., Montreal, Que.

SOLDER

Canada Metal Co., Ltd., Toronto.

STEAM SPECIALTIES

Grant E. Cole Co., 23 River Street, Toronto.
C. A. Dunham Co., Ltd., Toronto.
Empire Mfg. Co., London and Toronto.
Kerr Engine Co., Walkerville, Ont.
United Brassfounders & Engineers, Ltd.,
Manchester, Eng.

STEAM TRAPS

Grant E. Cole Co., 23 River Street, Toronto.
C. A. Dunham Co., Ltd., Toronto.
United Brassfounders & Engineers Ltd.,
Manchester, Eng.

STOVES

Gurney Foundry Co., Limited, Toronto.

STOVES, GAS AND COAL

Gurney Foundry Co., Ltd., Toronto.

SWIVELS, HOOK

J. H. Williams & Co., Brooklyn, N.Y.

TANKS, STEEL

The Canadian John Wood Mfg. Co., Toronto.

TANK BULBS, (RUBBER)

Canada Metal Co., Ltd., Toronto.
W. H. Cunningham & Hill, Ltd., Toronto.

THUMB SCREWS AND NUTS

J. H. Williams & Co., Brooklyn, N.Y.

TOOLS

Wolverine, Ltd., Toronto.
Empire Mfg. Co., London and Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
Standard Sanitary Mfg. Co., Ltd., Toronto.
Hamilton.
J. H. Williams & Co., Brooklyn, N.Y.
W. H. Cunningham & Hill, Ltd., Toronto.

TORCHES

W. H. Cunningham & Hill, Ltd., Toronto.

UNIONS

Canada Metal Co., Ltd., Toronto.
Empire Mfg. Co., London and Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
United Brassfounders & Engineers, Ltd.,
Manchester, Eng.

VAPOR HEATING SYSTEMS

C. A. Dunham Co., Ltd., Toronto.

VICES, CHAIN, CLAMP, MOUNT

J. H. Williams & Co., Brooklyn, N.Y.

VITRO TANKS

Galt Brass Co., Ltd., Galt.

VACUUM SYSTEMS OF HEATING

C. A. Dunham Co., Ltd., Toronto.

VALVES

Empire Mfg. Co., London and Toronto.
Jenkins Bros., Ltd., Montreal, Que.
The Kerr Engine Co., Walkerville, Ont.
United Brassfounders & Engineers Ltd.,
Manchester, Eng.

WATER SUPPLY SYSTEMS

Empire Mfg. Co., London and Toronto.
Standard Sanitary Mfg. Co., Ltd., Toronto.
Hamilton.
The Westco Pumps, Limited, Toronto.

WASHERS

Canada Metal Co., Ltd., Toronto.
W. H. Cunningham & Hill, Ltd., Toronto

WASHING MACHINES

Gurney Foundry Co., Ltd., Toronto.

WRENCHES, SET, DROP FORGED,**ENGINEERS, SOCKET AND CHAIN PIPE**

J. H. Williams & Co., Brooklyn, N.Y.

WROUGHT COUPLINGS AND NIPPLES

Canada Metal Co., Ltd., Toronto.
Fittings, Ltd., Oshawa.

BEAVER BRAND

Porcelain Enamel Ware

— *Your Guarantee of Quality* —

Beaver Brand Enamelware by its ability to meet the highest demands for service under all conditions, has established itself in the confidence of the public to such an extent that each month witnesses an ever-increasing demand for products of Beaver manufacture.

Amherst Foundry Co., Limited

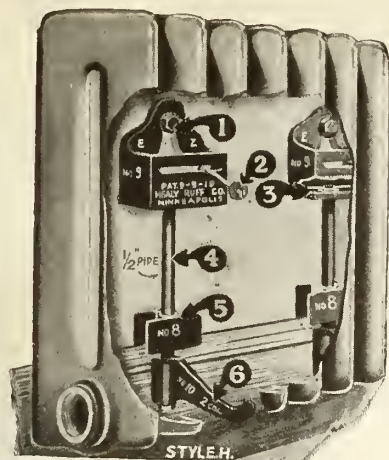
General Offices and Factory: Amherst, N.S.

Agents:**ONTARIO:**

Monarch Brass Mfg. Co.,
71 Brown St., Toronto

MANITOBA AND NORTHWEST:

E. B. Plewes,
197 Princess St., Winnipeg



TRY IT! The E-Z Radiator Hanger

You'll only have to try it once because it always works satisfactorily and there is a demand for more all the time.

It hangs radiators securely and is a real device to give a neat and complete finish to the interior of every home.

The E. Z. Radiator Hanger has one Bolt, Invisible Washer, Horizontal Adjustment, Vertical Adjustment, Baseboard Adjustment.
Made for Wall and Column Radiators.

IMMEDIATE SHIPMENTS FROM LARGE STOCK.

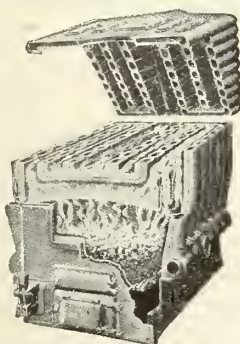
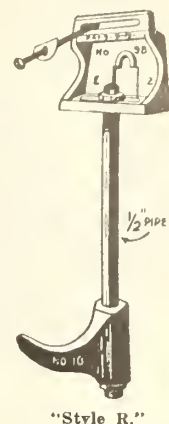
MADE IN CANADA

HEALY-RUFF CO.

MINNEAPOLIS, MINN.

J. H. Leonard, Tribune Bldg., Winnipeg.
D. G. Brison, Standard Bank Building,
Vancouver.
A. Walker, 514 McLean Bldg., Calgary.
E. T. Flanigan, 229 College St., Tor-
onto.

Eager Coombs & Co., Ltd., Halifax,
Can.
Shaver Bros., Booth Bldg., Ottawa.
S. T. Hadley, 304 University St.,
Montreal.



Long Fire Travel and Short Coal Bills.

The less up chimney heat there is, the more boiler heat there is going to be.

"Up chimney" heat means coal waste.

In the illustration you will see that the Burnham Boiler fire travel is three times back and forth on both sides of the boiler.

This means that the bulk of the heat is out of the gases before they enter the flue.

Lord & Burnham Co. Limited
(Boiler Department)

Harbor Com. Bldg.
Toronto.



Factory—St. Cath-
arines, Ontario.



Choose The Right Tool

You can't expect a cheap, inefficient wrench to hold and turn rusted pipe or fittings. It's bound to slip or break.

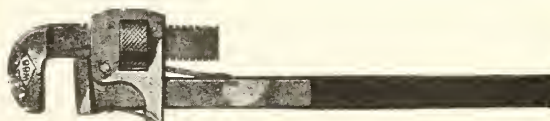
WILLIAMS' STILLSON WRENCH is dependable; it is made for heavy duty. Drop-forged from special steel, carefully hardened and tempered, its sturdy strength is proof against the knocks and strains of hard service. The tough teeth retain their sharpness; they "bite" instantly, yet release readily.

For grip, power and endurance, choose Williams' Stillson. Wood and Steel Handle patterns — eight sizes, 6 to 48 inches. Made in Canada.

J. H. WILLIAMS & CO., LTD.

"The Wrench People"

77 Thorold Rd., St. Catharines, Ontario



ATTENTION! Contract Shops, Stores, Employers, Clerks, Mechanics, etc.

Our new HOME STUDY course in BUSINESS ADMINISTRATION is now ready for the trade. It teaches you the most modern methods of Business.

Learn to extend your Markets; enlarge your Business; Learn to adjust all the business combinations to the limit. We build on top of your present Ability and give you a business training equal to the best.

We teach you in your own home or office, Clear, Personal, Direct. An Hour a Day will prepare you into a highly specialized Executive. Make ready for the next great prosperous Building wave.

Full information free.

COURSES IN MODERN BUSINESS ADMINISTRATION

COURSES IN SHEET METAL DESIGN AND PATTERN DRAFTING

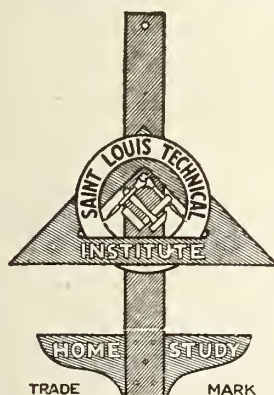
COURSES IN HEATING AND VENTILATING ENGINEERING

ST. LOUIS TECHNICAL INSTITUTE

4543 Clayton Ave.

O. W. Kothe, Prin.

St. Louis, Mo.



Wanted

Rates for Classified Advertising

Advertisements under this heading 3c per word for first insertion; 2c for each subsequent insertion. Where answers come to Box number in our care to be forwarded, 5 cents extra per insertion must be added to cover postage, etc.

Contractions count as one word, but five figures (as \$1,000), are allowed as one word.

Rates (payable in advance). When panels are desired a charge of \$2.50 is made for a panel 1 inch deep by 2 $\frac{1}{8}$ inches wide. Minimum charge for any ad. \$1.00.

WANTED

WANTED—TWO SALESMEN FOR STEAM specialties, experience with steam not necessary, but preferred. Apply Box 835, Sanitary Engineer, Toronto.

SITUATION WANTED

SALESMAN WITH COMPLETE KNOWLEDGE of plumbing, Heating and Sheet Metal goods. also road experiences and good connections with the trade, in the Maritime Provinces, wishes to connect with good firm. For particulars. write Box 931, Sanitary Engineer, Toronto.

FOR SALE

TAYLOR SAFES FOR SALE—RARE OPPORTUNITY to secure a safe at small cost. They are in splendid condition. Inside dimensions and prices are as follows: 15 in. deep, 2 ft. 6 in. wide, 3 ft. 11 $\frac{1}{2}$ in. high, fitted with built-in compartment. Price \$250.00. 18 in. deep, 2 ft. 8 in. wide, 4 ft. 5 in. high, fitted with steel compartment. Price \$200.00. Apply Box No. 701, Sanitary Engineer, Toronto.

When answering advertisements please mention Sanitary Engineer.

ADDRESSING MACHINE FOR SALE—WE have a complete Belknap Addressing Equipment for sale. This equipment is still in use in our Subscription Department and is in excellent working order. We have placed an attractive price on this outfit, and would advise manufacturers or merchants having a mailing list to let us tell you how it will save you money. We will give a guarantee as to the proper working condition of this equipment. The MacLean Publishing Co., Ltd., 143 University Avenue, Toronto, Ontario.

OPPORTUNITY FOR SALESMEN

Wanted: Salesmen in various parts of Canada calling on retail trade, to carry sideline which we feel sure will be approved by his principals and will increase the purchasing power of his clients.

Earnings will be on a commission basis and should amount to a substantial figure. Applicants must have good record for production, and must give satisfactory references as to character, reliability, etc.

Apply, giving experience, references and names of firms by whom employed during past ten years; also state definitely the territory you cover and how frequently you go over the ground. No application considered unless this information is given. All applications will be treated in strictest confidence.

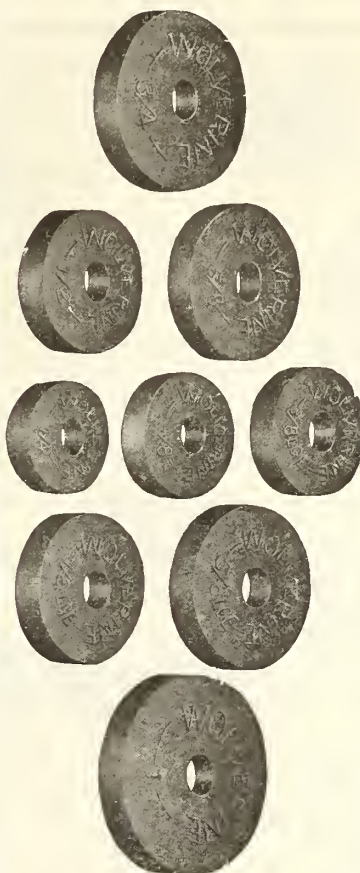
Box 600

SANITARY ENGINEER, 143 University Ave., Toronto

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Yes! You Can Buy Lower Priced Bibb Washers But Does It Pay?



Satisfied customers rarely neglect to pay bills. Protect your labor charge by using Wolverine Quality Bibb Washers.

Leather
Grey Fibre
Red Fibre
Graphite Base
Asbestos Base
Pure Gum Rubber

Largest and most complete line stocked in Canada.

Equally effective in hot or cold water.

WOLVERINE

LIMITED

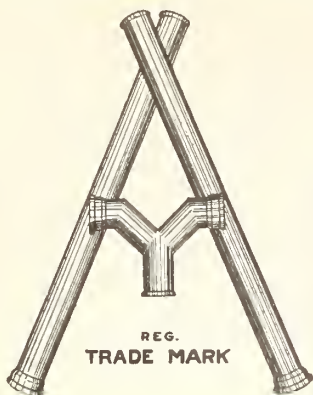
76 Nelson St., Toronto-



**Union Washers—
Rubber, Fibre or
Paper.**

**Material and sizes
are right.**

**It pays to have Wolverine articles on hand
for instant use. ORDER NOW.**



USE

TESTED Soil Pipe

IT COSTS NO MORE AND YOU KNOW THE JOB IS RIGHT

Manufactured by

FORWELL FOUNDRY, LTD.

KITCHENER, ONT.

Quality



Service



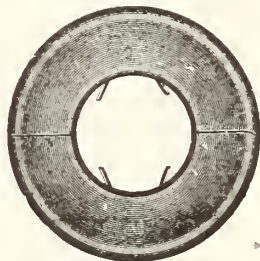
Always Necessary

GEM NO. 4. AUTOMATIC AIR VALVE

This automatic air valve is made of the best brass obtainable and is equipped with high grade carbon. The mechanism is perfect, every valve being guaranteed by us. Ask for a catalogue of Steam Specialties. We manufacture many of interest to Canadian Plumbers and Steam Fitters.

You can have as complete a finished piece of work as is possible if you insist on using reliable floor and ceiling plates. They hide all bored places in the ceiling. Are coming more in vogue all the time.

The No. 10A Narrow Flange Plate is Steel Hinged. Flanges 3-4 ins. wide. Highly Finished. Especially designed for Twin Connection. "Narrow" can be attached to mains and risers at the very last.



The Beaton & Cadwell Mfg. Co. NEW BRITAIN, CONN., U.S.A.

EASTERN AGENTS:

J. R. DEVEREAUX CO., 602
New Birks Bldg., Montreal.

WESTERN AGENTS:

A. E. HINDS & CO., Cham-
ber of Commerce, Winnipeg

ONTARIO AGENTS:

L. N. VANSTONE, 8 Welling-
ton St. E., Toronto, Ont., Can-
ada.



The Martin Portable Vise Stand

Light in weight—
only fifty pounds

Can be carried anywhere with-
out inconvenience.

Put up in two seconds; no bolts, screws or
fastenings needed.

Use the Martin Portable Vise Stand where
pipe or conduit must be bent, cut or threaded.
10 days free trial.

If your jobber can't supply you—write us.

H. P. MARTIN & SONS

803 W. 12th Street OWENSBORO, KY.

CANADIAN REPRESENTATIVE:—L. F. Mayne, 875 Trafalgar
Street, London, Ontario.



Out-of-Town Business

Only those who have to live the year
around in a locality without city
conveniences realize the hardships in-
volved, and it is among these that
you can do a profitable business with
the

"TWEED"

SANITARY CLOSET

A city convenience at a fraction of
the cost—anybody can afford one.
Compactly packed for shipment and
easily handled.

We also make an attractive
line of "Tweed" Baths and
other home conveniences.

Write for price lists and literature.

Steel Trough & Machine Co., Ltd.

TWEED, ONT., CANADA

LOUIS A. PAYETTE.

304 University St., Montreal.
Quebec and Eastern Representative



NO. 1 "TWEED"

Sanitary Closet with mahogany
finished seat and lid with
nickel-plated hinges.

The special "Tweed" chemical
used in connection with the closet,
destroys every trace of odor. Easily
installed, as no plumbing required.



Tapped Closet Bend

Easier to attach

More permanent

Cost less



WROUGHT PIPE



Suitable for the approaching period of
building activity, road construction, etc.
This is a line of great importance in
making successful, profitable contracts.
Our C. T. Brand of Wrought Pipe has
been

THOROUGHLY INSPECTED

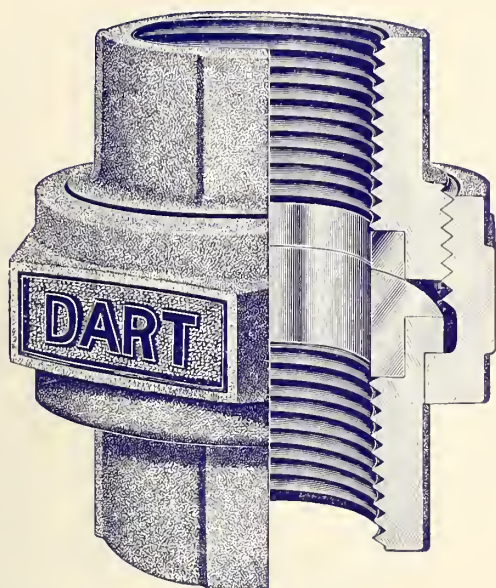
by practical, experienced men. It is tested to 600
lbs. hydraulic pressure, and branded with our trade-
mark. We carry this line of reliable pipe in sizes
½-in. to 4-in. Black or Galvanized. We also manu-
facture nipples and couplings, black and galvanized,
in all sizes.

Ask your Jobber for C. T. Brand Wrought Pipe

Canadian Tube and Steel Products Co., Ltd.

Operating Canadian Tube and Iron Co., Limited
Works at Lachine Canal, Montreal

DART Union Pipe Coupling



Will not leak, loosen, rust, nor corrode

Bronze to bronze is the secret.

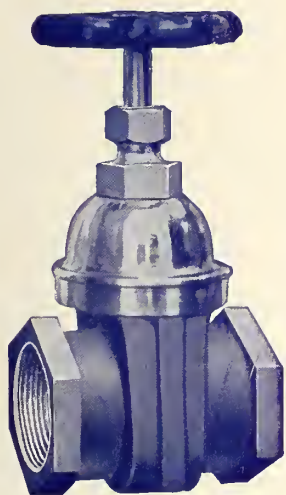
The heavy malleable iron pipe ends and nut help some but it is the snug-fitting non-corroding bronze to bronze that gives Dart Unions the necessary qualities to meet the sternest service conditions.

The Dart—so easily connected—remains a permanent, unbreakable union until taken apart with a wrench.

Your Jobber Sells Them.

Manufactured by Dart Union Co., Limited, Toronto

KERR VALVES



No. 43—Screwed

The illustration here is of our genuine WEBER PATENT Bronze Gate Valve.

All old timers remember it as the best made and best appearing gate made in Canada.

It earned its reputation years ago, and still maintains it. It has stood the test of time.

What better recommendation could one ask for a valve, than to meet all comers for 40 years.

It has had its imitators, but the genuine Kerr Weber Gate leads the procession.

Get out in front and use Kerr's Weber Gates. You will see the difference.

The **KERR ENGINE COMPANY**
LIMITED

WALKERVILLE

Valve Manufacturers

ONTARIO



Achievement

"Art," someone has said, "is the expression of man's joy in his work."

And it is equally true that the same smooth, sheer beauty of the New Design Vitro Tank is something that would come only from a plant where lies the pride of creative workmanship—that is imbued with the joy of doing.

This beauty of design is, however, but a part of the whole; before the purely decorative comes utility. Strength, permanence, efficiency—these three unite with beauty in the Vitro, the best selling tank on the market.

At Your Jobber's

Galt Brass Company, Limited

GALT

ONTARIO

VITRO
NOTROUBLE
TANK

Sanitary Engineer

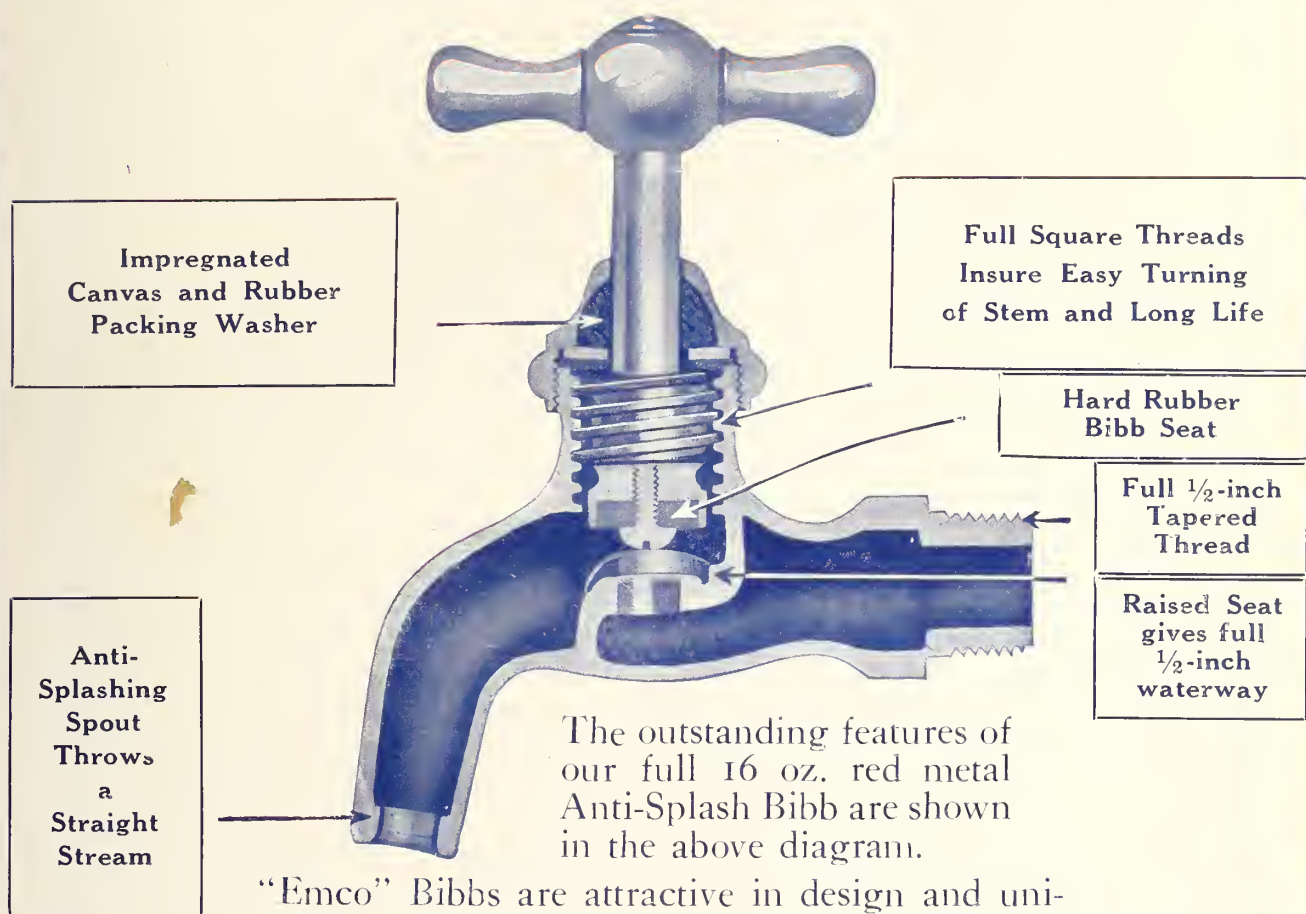
Plumber and Steamfitter of Canada

Vol. XVII.

PUBLICATION OFFICE, TORONTO, FEBRUARY 1, 1923

No. 3

"Emco" Red Metal Bibbs



"Emco" Bibbs are attractive in design and uniformly cast to assure long service. Each bibb must prove itself in rigid tests before it leaves our factory.

Your jobber carries "Emco" plumbing supplies and fixtures.

EMPIRE BRASS MANUFACTURING CO., LTD.
LONDON and TORONTO, CANADA.

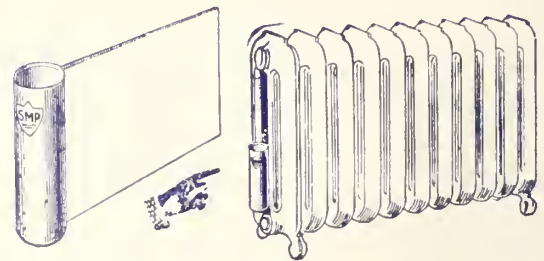
SMP HUMIDIFIERS

*A Fast Selling New Line Which
Every Merchant Should Handle.
Place Your Order Promptly*

This new Humidifier (air moistener) is badly needed in Canadian homes. In homes where there is not enough moisture the furniture, floors and woodwork, wallpaper, bookbinding and pictures suffer. Pianos especially show the ravages of too-dry air in homes. Much disease, such as catarrh and eczema can be traced directly to the absence of moisture in the air.

This new Humidifier certainly fills the job. Note the illustration. The water is poured into the tubular part and also fills the narrow pan end. This thin pan end is inserted between the coils, where it fits securely. It comes in direct contact with both sides of the radiator, thus giving the highest possible evaporation of water. In cold weather one of these humidifiers will evaporate almost one quart of water a day. They should be in every room of every home for health's and economy's sake.

The **SMP** Humidifier is made of Galvanized Iron and is finished in either Pearl Grey or White Japan. Sizes: No. 5, pan 18" x 5", supply



Design Reg'd., Patent Pending.

The SMP Humidifier fits securely into the radiator; cannot spill or leak; well finished; inconspicuous.

can 3" x 5". Total capacity 1 1/4 quarts. Fits smaller size radiators. Size No. 10, pan 18" x 9 1/2", supply can 3" x 9 1/2". Total capacity 2 1/2 quarts. Fits almost any standard radiator.

There is profit for you in this new line, and splendid turnover, as each customer should purchase enough to outfit his entire home. We warmly endorse and recommend the new **SMP** Humidifier. Try them out in your own home first. Then you will see their selling possibilities.

SHIPMENTS MADE PROMPTLY

	<p>THE SHEET METAL PRODUCTS CO. OF CANADA LIMITED</p> <p>MONTREAL EDMONTON TORONTO VANCOUVER WINNIPEG CALGARY</p>	
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For Beauty of Design

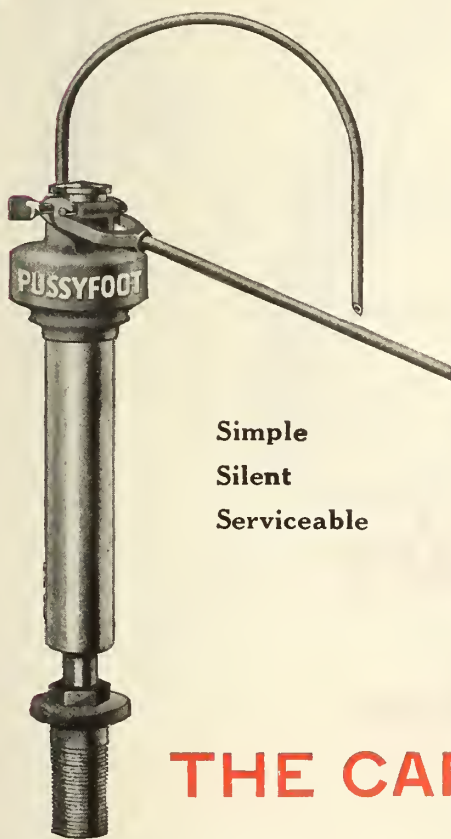
THE Pussyfoot Closet Tank

Still shows the way—and the attractive appearance, wherever one is installed means added value to the property.

There is also the satisfaction of *knowing* that the mechanical parts inside the



Tank, all of which are manufactured from the highest grade material, are in keeping with the high standard of the Design.



Simple
Silent
Serviceable

The New Valve

Finds favor everywhere because of—

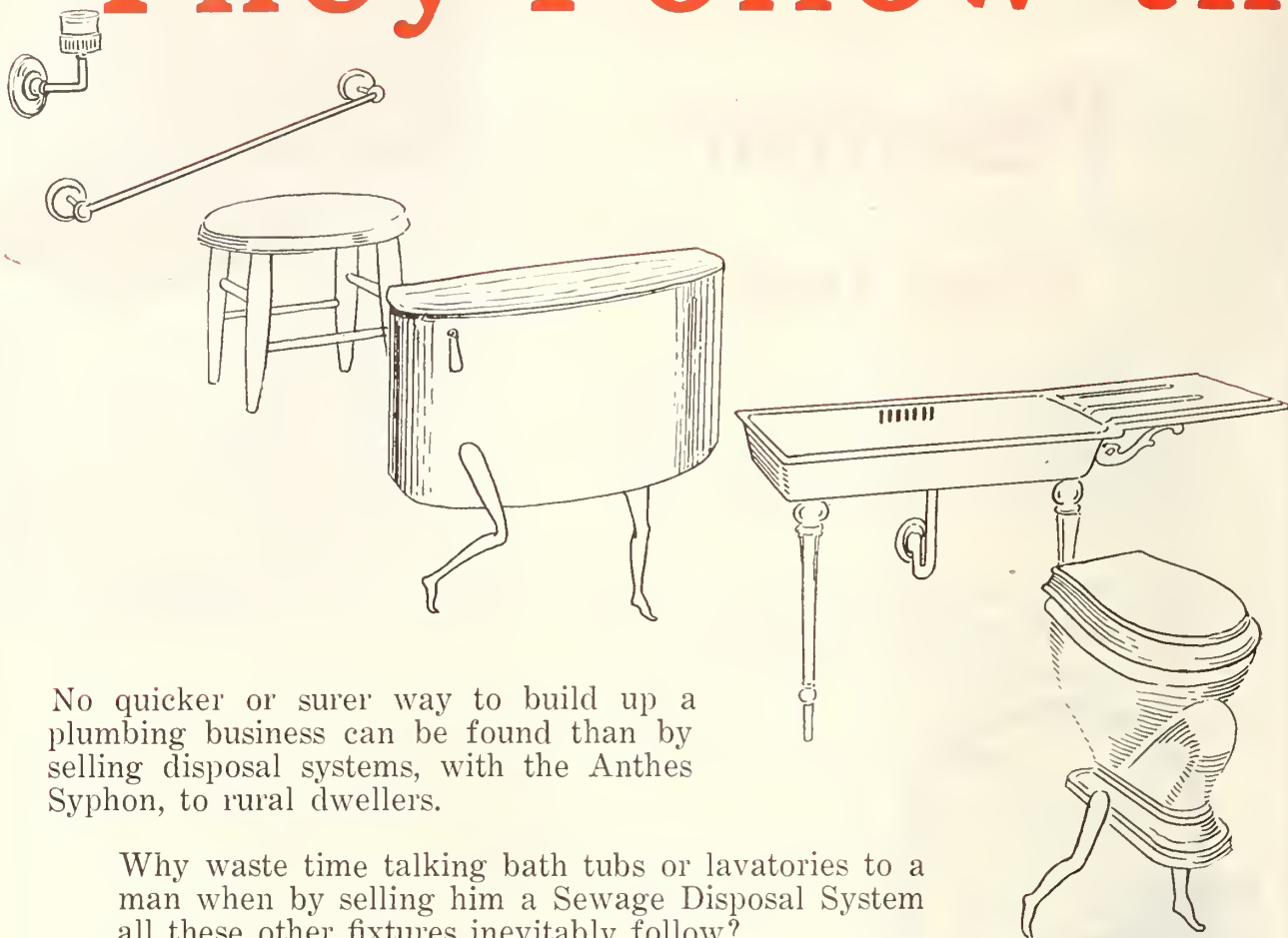
Its extreme silence in operation.
Its rapidity in filling the tank.
Its simplicity of mechanism.

A "Pussyfoot" outfit costs you no more although it is worth far more than the price it is sold at. Specify to your Jobber and insist on getting it.

THE CANADA METAL COMPANY LIMITED

Montreal Hamilton TORONTO Winnipeg Vancouver

They Follow the



No quicker or surer way to build up a plumbing business can be found than by selling disposal systems, with the Anthes Syphon, to rural dwellers.

Why waste time talking bath tubs or lavatories to a man when by selling him a Sewage Disposal System all these other fixtures inevitably follow?

Their sales and the job of their installation are mighty profitable transactions for you.

*The Anthes Syphon is the Heart
of the Disposal System.*

Anthes Foundry
Limited
Toronto and Winnipeg

Manufacturers of
Cast Iron Soil Pipe and Fittings

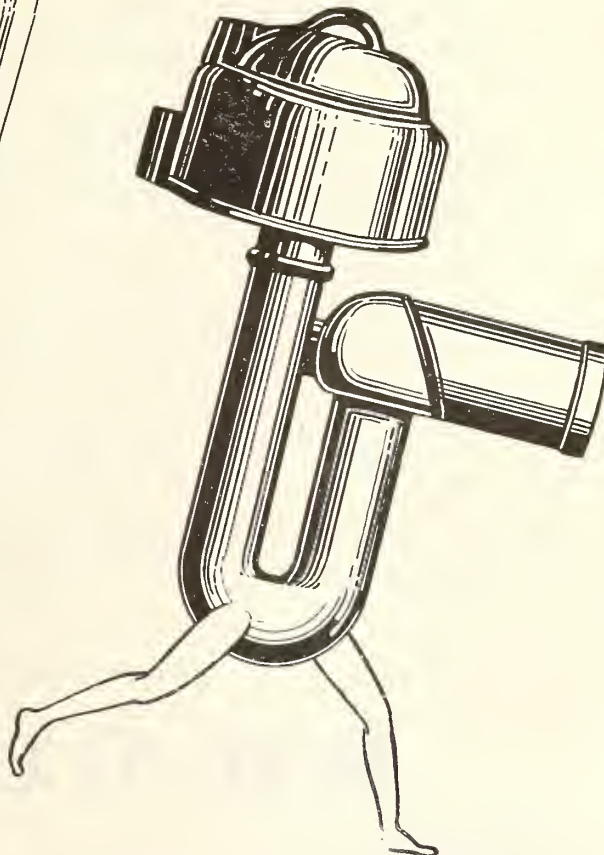
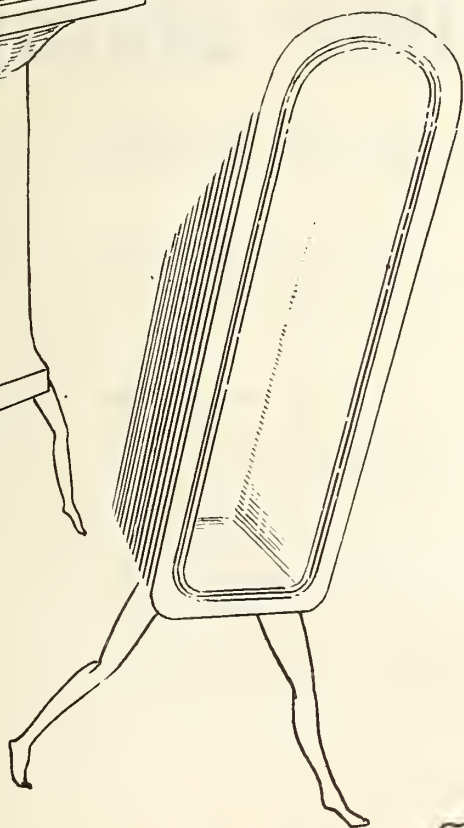
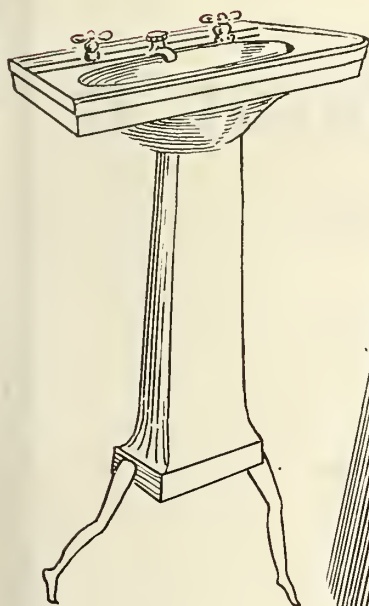
ale of the Syphon

Sell Disposal Systems First

An Immediate Demand for Plumbing Fixtures Follow

Discriminating Sanitary Engineers prefer "Anthes" soil pipe because its thirty years of manufacturing experience have made it so dependable.

Anthes soil pipe and fittings cost no more than the ordinary kind, yet each piece will give longer and more satisfactory service.





There's no magic about it

Dollar bills don't grow on every bush, it's true.
Neither do fat, profitable contracts.

Your hard-headed sanitary engineer is skeptical
about any such magic in the plumbing business—
and rightly so. But—

By having positive, current price information the
progressive plumber can place every job, large and
small, upon a methodical, profitable basis.

There is no magic about Allpriser. It gives you
thorough, right-up-to-the-minute Price Service. It
makes estimating on jobs a pleasure instead of a
labor of doubt and pencil chewing. You owe it to
yourself to make Allpriser your ally from now on.

Write today to

K. B. ALLISON

4 Irwin Ave.

Toronto, Ont.

Lay Your Plans Now *for* *Spring^{and} Summer Business*

Rural Development Number February 15th.

Manufacturers of Plumbing and Heating Equipment—Canadian Sanitary Engineers want to know more about your product.

1923 will see thousands of installations of plumbing and heating jobs in Canada's rural field.

And—Canadian Sanitary Engineers will install them.

They expect you to give them all the information you can about your product—information that will help them to put across sales.

You can do this at small cost through the advertising columns of this paper—the only journal of its kind in Canada and read by 90% of the worth-while plumbing, heating and tin-smithing men of this country.

Get your message across in this and succeeding numbers of **SANITARY ENGINEER**, Canada's livest trade publication.

Don't Forget

Forms close February 12th. Get your copy in NOW.



Buy goods that are open to the light of publicity.

Splendor Reigned



Louis XIV, the Grand Monarch, who brought the world to his palace at Versailles, set a standard of luxurious living that has had no subsequent parallel.

All the world knows of the forty personal servants who ministered to his every want; of his gallantries with the fair duchesses of France; of the great victories of his generals; of the Hall of Mirrors;—the gardens and fountains of Le Grand Trianon and of Fontainebleau; of the charm and majesty of his manner—

—**BUT**—We wonder if he would not have fired a dozen or two valets and become a little more human could he have stepped into a nice, modern bath tub each morning, turned the tap and mixed the hot and cold as he desired.

Servants carried water in pails to the ornate bath tubs of Versailles, and, when the master's toilet was completed, baled the tub out with a sponge—it did not have even a drain plug.

To-day the man of average means has a "Standard" bathroom; at his command are refinements of living of which Louis never dreamed.

"Standard" *Equipment in his window is the plumber's surest recommendation to the home builder of to-day.*

Standard Sanitary Mfg. Co.
Limited

General Office and Factory: Royce and Lansdowne Aves., Toronto, Ont.

Calgary:
354 11th Avenue West

Hamilton Store:
26-28 Jackson Street West

Montreal:
New Birks Bldg.

Winnipeg Showrooms:
145 Market Street East

"Made in Canada"

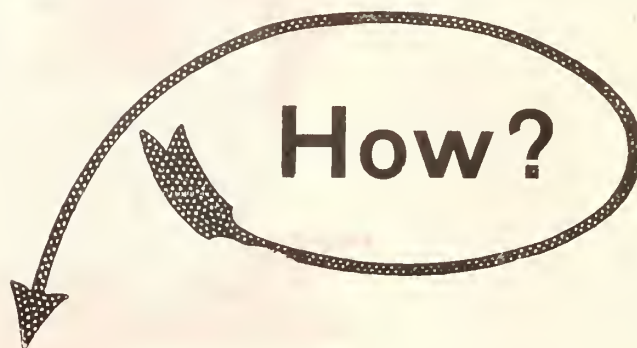
Vancouver:
860 Cambie Street



PROFIT



Every 4 Months



Supposing your jobbing, repair and retail business amounts to \$15,000 during the year. By the use of our pricing system you will receive at least 10% better prices. - This means an extra profit of \$1,500 or \$500 every 4 months, and the cost of our service is about 10 cents per day.

HERE'S HOW

We furnish you with a large loose leaf leather covered binder containing suggested selling prices on over 3,000 items in the Plumbing and Heating business. No matter how often cost prices change we keep your book changed up-to-date. We have four people working on this continuously. It has many other features which cannot be explained here. You certainly should try it out.

Get the Facts



TEAR HERE

HENDERSON BUSINESS SERVICE, Ltd.,
Box 123, Brantford, Ontario.
Send me your book "Profit Insurance".

NAME

ADDRESS

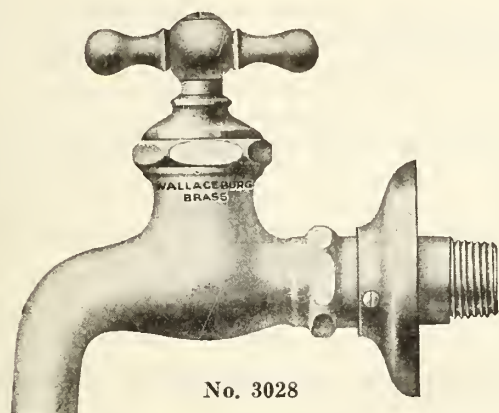
No obligation.

Henderson Business Service
LIMITED

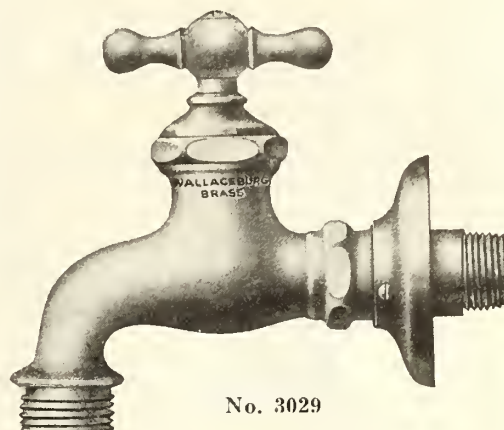
Box 123 Brant Farmers Bldg.
Brantford

Standard Sink Faucets

FOR THE DAILY GRIND



No. 3028



No. 3029

By STANDARD we mean a full weight Bibb, **sturdily designed, accurately machined** from prime brass castings, fine and tough and enduring.

We mean a Bibb with **precise threads** that can be readily made up on a job, **tight and snug and sightly**.

We mean a Bibb that has interior body thread and stem thread full and deep and **in close contact**, yet with handles that work freely and **can be spun to a firm seat**.

We mean a Bibb having the **best obtainable** Composition Cap Nut packing and Seat Washer—a Bibb with **handles corrugated on stems** and surface counter sunk to let in handle screw—a Bibb of finely polished brass or heavy nickel plate surface—the whole a finished product.

Install these **real Bibbs**—they will satisfy the plumber and get and keep trade.

Ask Your Jobber

The Wallaceburg Brass & Iron Mfg. Co., Limited

WALLACEBURG, ONT.

TORONTO:

Mr. L. N. Vanstone, 10 Wellington St. East
Telephone: Main 2355

MONTREAL:

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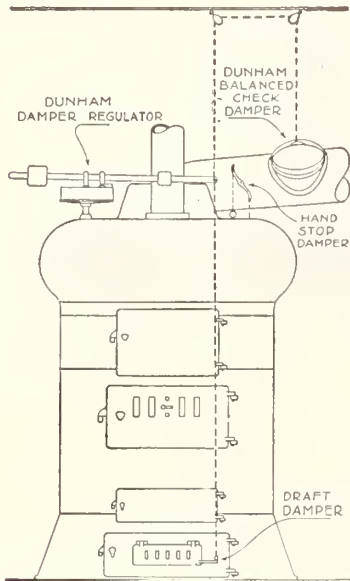
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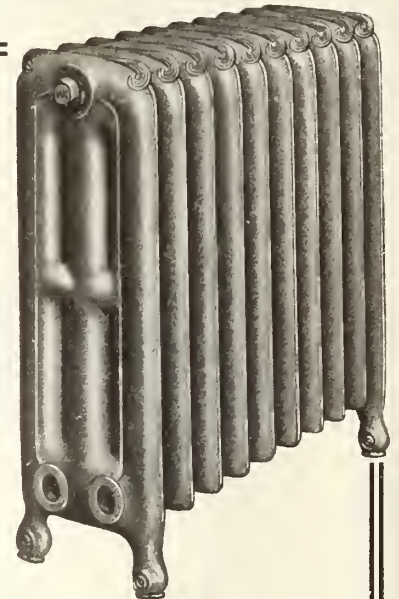
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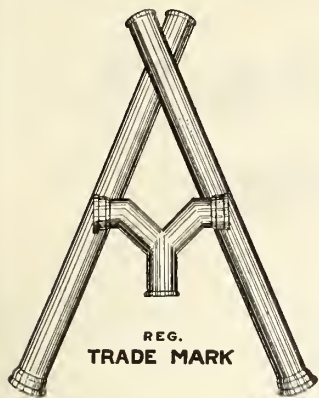
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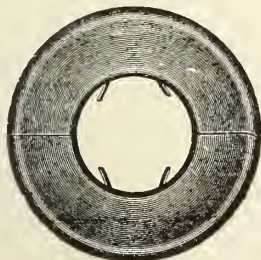
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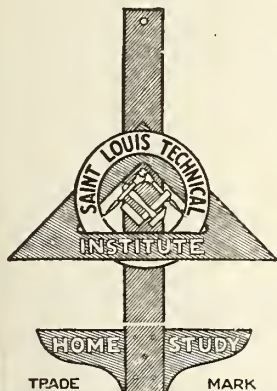
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SANITARY ENGINEER

PLUMBER AND STEAMFITTER OF CANADA

ESTABLISHED 1907

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No. 3

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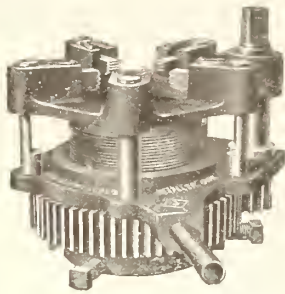
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VOL. XVII.

TORONTO, FEBRUARY 1, 1923

No. 3

How Sanitary Science Lessens Disease

**Marked Decrease in Typhoid Fever in Exact Ratio as Dry Closets
Reduced and Sewers Installed—Freezing of Sewers Was Aggra-
vated by Permission to Do Away With House Traps on Plumbing
Systems—Wooden Sewer in Use for 47 Years**

(Address to Manitoba Branch Sanitary Inspectors Ass'n. of Canada by James Smith,
Chief Plumbing and Sewer Inspector).

THE development of sanitary engineering is a most interesting study and before discussing the sewerage system of Winnipeg and particularly the maintenance of it, I would like to touch lightly on a historical review of sewers and drainage work and in doing so I would point out that sewers are not the outcome of modern civilization. Investigations in the realms of archeology have disclosed that sanitary science was not unknown in the older worlds and the water borne method of removal of sewage was practised in some of the palaces unearthed in recent years on the island of Crete. Latrines hewn out of stone with water flushing arrangements were found in these ancient buildings which date back to an earlier civilization than Rome or Athens, and are reliably computed to have existed about 2500 years B. C. The Assyrians also constructed large masonry sewers in their palaces built in the 8th and 9th centuries, B. C., but the most famous of ancient sewers is the "great sewer" of Rome, constructed in the 7th century, B. C., and still in use after a lapse of over 2,500 years. A large tract of Rome could not have been inhabited without this sewer and one authority states: "To this gigantic work, admired even in the time of the magnificent Roman Empire, is undoubtedly owing the preservation of the Eternal City, which it has secured from the swamping that has befallen its neighboring plains."

Neglected in Dark Ages

It is interesting to reflect, judging from the intelligently planned drainage systems that have been disclosed, that those ancient engineers had a very clear conception of the necessity for paying great attention to this matter so vitally affecting public health. The art reached its highest ancient development in the time of the Roman Empire. The Romans in fact were the greatest engineers of antiquity and especially excelled in sanitary engineering. With the fall of the Roman Empire, sanitary engineering suffered the same retrogression which befell learning and science, and for a thousand years—through the middle of dark ages—it was entirely neglected with the result that terrible pestilences desolated Europe periodically.

In Great Britain modern sanitary engineering may almost be said to have originated, yet as recently as 1815, laws were enforced forbidding the discharge of faecal matter into the sewers. This law was repealed however, in 1847, and an exactly contrary act passed, making it compulsory to discharge faecal matter into the sewers.

Wooden Sewer

Modern sanitary engineering, particularly with regard to sewage and drainage, has had its entire development since 1850, and it is a short step, as we have been measuring time to-day, from 1850 to 1875, when the first sewer was laid in

Winnipeg and extended from south of Broadway to the C. P. R. tracks north of Higgins Ave., a distance of approximately $1\frac{1}{2}$ miles. It reflects great credit on the pioneers of this city that they had the courage to launch into such a large scheme with a population of about 2,000 persons. This is a wooden barrel sewer and has a diameter of from 2 ft. 6 in. to 3 ft. 6 in., and after being in use over 47 years I have no hesitation in saying that it is in better shape to-day and has cost less for maintenance than any trunk sewer since constructed.

Brick Sewers

In 1883-4 the trunk sewers on Bannatyne Ave., Logan Ave., Assiniboine Ave. and Syndicate St. were constructed of brick, all of them have given good service and cost very little for maintenance. From that time steady progress was made in keeping with popular demand and financial ability, till in 1893 General Ruttan reported that 35 miles of sewers had been constructed.

Concrete Sewers

In 1903 concrete began to be used for the construction of trunk and sub-trunk sewers and has since been used exclusively till a few years ago. There are now approximately 262 miles of sewers in the city, $44\frac{1}{2}$ miles of which are of concrete construction and range from 2 ft. 0 in. to 9 ft. 0 in. in diameter. A very large proportion of repairs are on concrete sewers and it is only a question of time in my opinion till most of these concrete sewers will require to be rebuilt. In most of our concrete sewers disintegration of the concrete is to be found and in a number of cases the sewers have collapsed entirely for a distance of 10 to 20 feet. This condition is due to the presence of alkali salts in the soil being leached out by the ground water and coming in contact with the concrete sewers. Our city chemist, after a great deal of experimentation, states that a concentration of 500 to 10,000 parts per million will affect good concrete, but poor concrete may be affected by a lesser concentration. This condition is not peculiar to Winnipeg, but is found in all the prairie provinces and in the Middle States of America and attacks concrete foundations or any other concrete underground. A research laboratory was established in Saskatoon last year to thoroughly investigate the matter and devise, if possible, some means of avoiding or counterbalancing the trouble. Meantime we are patching up our concrete sewers as well as possible to keep them in service till more definite information is available, and there has been at least one sub-trunk sewer constructed of segmental tile. No concrete sewers will be built meantime.

There are 684 underground flush tanks with an average capacity of 260 gallons. These are placed at the end of laterals and are operated 2 or 3 times a week. In addition a hose gang is constantly flushing the sewers which are uncompleted or have no flush tanks. From 18 to 20 million gallons of water are used annually in this work. The sewer system of Winnipeg is well designed and very little trouble is experienced from deposit in the sewers. In this respect the greatest trouble we have is due to the raising of the river level in the summer by the closing of the St. Andrews Locks which causes our sewer outlets to be submerged, consequently when the locks are opened in the late fall and the river level is lowered, considerable deposit is left in the trunk sewers close to the river, and this has to be flushed out.

Climatic Troubles

In a climate such as we have in Winnipeg a great deal of care has to be exercised in winter time to prevent freezing of the sewers and sewer connections, and it is a matter of wonderment to me that there is not a great deal more trouble from this source. At one time it was quite a common occurrence for sewers to freeze up, even at a depth of 20 feet, due to indrafts at manholes and this was aggravated when permission was granted to permit of doing away with house traps on plumbing systems. However, by carefully noting year after year where the trouble was worst and covering the manholes in winter time our frost troubles have been almost entirely eliminated. The fact is, we can only permit a very limited amount of ventilation in our sewers during winter, a complete reversal of policy as practised by cities in more temperate climates.

Latest Problem

Our most recent problem has been the return of the ground water to its former courses in the form of springs since the Shoal Lake Water System was inaugurated and the Well System abolished about 2 years ago. There is considerable evidence that the ground water level has risen and recently at one point 30 feet of an 18 in. tile pipe sewer collapsed. On excavating we found that springs had washed the clay from under the pipe, causing it to collapse. This pipe was replaced with a cast iron pipe resting on gravel and 6 lines of 4 in. weeping tile were laid alongside the iron pipe connected to a manhole. When the pipes were in place 4 of the 6 weeping tile lines were running full.

I would draw your attention to the marked decrease in typhoid fever in Winnipeg since 1905, almost in an exact ratio as dry closets were reduced and sewers and sanitary plumbing installed. In 1905 there were 6,339 dry closets in Winnipeg, and in the same year 1606 cases of typhoid fever. Year after year as the dry closets were abolished the

number of cases of typhoid fever was reduced till in 1920 and 1921 there were only 400 dry closets within our boundaries and in each of these years there were only 17 cases of typhoid fever and not one death occurred from this cause. The incidence of typhoid fever is accepted by authorities as an index of the sanitary condition of a community, and judged on this basis, Winnipeg holds an enviable position. This condition, I have

no hesitation in saying, is very largely due to the policy and unremitting efforts of the Health Department and it must be a very great source of pleasure and encouragement to you to know that your work has been so successful. The saving of life, the saving of sickness with all its inconvenience and mental anguish cannot be measured in terms of money. It is of incalculable value to the community and citizens of Winnipeg.

Accidents From Defective Appliances

Great Danger From Insufficient Venting of Gas Appliances in the Form of Carbon Monoxide—Should Have Gas Feed Pipe Not Smaller Than $\frac{3}{4}$ " for Four-Burner Range

Written for Sanitary Engineer by G. J. H.

Editor's Note:—After reading the article which appeared in a December issue of *Sanitary Engineer* with reference to the asphyxiation of a young girl from carbon-monoxide, a Toronto subscriber who is cognizant of the details involved has written the following review of the situation, giving tangible suggestions for meeting the danger involved:—

By G. H.

CARBON monoxide is a very poisonous gas and is produced in combustion processes, where there is a deficiency of oxygen for completely burning the carbon in the gas to carbon dioxides. A condition favorable for the production of carbon monoxide results with gas range burners when the flame is insufficiently aerated by placing the burner too close to the utensil. It is therefore very important to know exactly proper distance between burner and utensil without producing dangerous quantities of carbon monoxide. The air shutter adjustment of the burner which determines the characteristics of the flame has also much to do with securing perfect combustion. Carbon monoxide is a colorless, tasteless and odorless gas slightly lighter than air and burns with a pale blue flame; it is one of the combustible constituents of water gas, coal gas and producers' gas. The gas is very poisonous and it is due to this that so many deaths are caused annually by the accidental inhaling of artificial gases owing to the fact that carbon monoxide is colorless, odorless and tasteless and not easily detected by the ordinary senses. It can be present in very dangerous proportion before being detected, which shows the importance of large gas feed pipe not less than $\frac{3}{4}$ in. for 4 burner range to allow proper adjustment of each burner individually when a range is at full capacity. Carbon monoxide is present in greater quantities in gas water heaters, caused by hot flame striking cold coils, etc., and owing to this seriousness of carbon

monoxide poisoning it is important that every gas appliance have vent pipe from appliance to chimney which will carry away poisonous gases.

Other causes of gas accidents are:—Defective and worn appliances and stop cocks and particularly the deadly rubber tube connection. This connection is a flexible tube which allows the average person to connect a gas appliance without the aid of an experienced mechanic and owing to the tubing being of poor quality in 90 per cent. of cases, an accident results. In the city of Toronto each year a great many deaths occur from gas poisoning; during the year 1922 a toll of 25 lives was the result of such accidents (not suicides) and with this in view it is important to prevent reoccurrences from these conditions in the future, which should be done at once by the city of Toronto. In the city of Newark, N. J., under the supervision of "Mr. Ellsworth Francisco" a system of inspection is in force which regulates the gas appliances in rooming and lodging houses, also the sale of only approved rubber tubing which has been tested by inspection department. In this way a great many lives are saved, which certainly repays for maintenance of inspection dept. of this kind. It is to be hoped that the example set by Newark will be followed by others in the interests of human life.

Sandy, not feeling well, had consulted a doctor.

Doctor—"Do you drink, Sandy?"

Sandy—"Yes, sir."

Doctor—"Well, you must give that up. D'you smoke?"

Sandy—"Yes, sir."

Doctor—"You must give that up too."

As Sandy went quickly through the office door, the doctor exclaimed:

"You have not paid me for my advice, Sandy."

"I'm not taking it," replied Sandy.

Shows Comfort of "Heat by Radiators"

How a Plumber Gets the Interest of Prospects for Hot Water Heating Systems Through the Medium of Window Displays Which Carry a Distinct Appeal—Details of Construction of Window Which Should Pull Many Prospects

YOU HAVE a show window which is costing you money in rental and upkeep and as long as you have that window why not make it earn its way by at least presenting cleanliness and orderliness to the eye of the passer-by?

Who knows but that an expenditure of \$12.00 on this window may not cause just one prospect to pause long enough and then stop and think?

Who knows but that that one, just one, prospect may come in to you for information on the installation of a hot water heating job in his residence? In coming into enquire he is already largely sold on the idea; in coming to you he is also a large percentage sold to you as the installer of that job.

Why knows but that one, only one, prospect may become a client and you secure business without price cutting competition, the kind of competition that to-day makes you take business at 10 per cent. and less when your overhead is 20 per cent. and more?

Show Comfort from Radiators

This "Heat by Radiators" window can be made without regard for having, or making, any window background. The intention, in making this window, is to show the comfort, etc., from a radiator heat with a framework like a picture frame to cap it off.

This picture frame should be set up, twenty inches if possible, from the floor of the window itself to the top side of lower frame member. For this purpose construct a platform of 1 in. lumber which shall be two feet wide, six feet ten inches long at front, and angled on each side so as to be four feet long at the back. Make sure that this platform is securely braced so that it will not topple over, although it is not necessary to nail to the floor of the window.

The front frame itself is made out of $\frac{3}{4}$ in. by 4 in. dressed lumber and is five feet three inches high by seven feet long, mitred at each corner. In connection with this frame four angle plates may be secured at a hardware store for five cents each which will strengthen the nailing of your mitred corners. Stain this frame with two coats of mahogany combination stain and varnish. Two angle brackets screwed to the lower member of frame, one inch from top side of same, will allow this frame work to rest on the platform.

For the back wall make a framework of $\frac{3}{4}$ in. by 3 in. dressed lumber to measure outside four feet wide by five feet high and on to this framework fasten the same size of beaverboard, tacking same along the edge of frame.

The side walls are two feet six inches wide by five feet high of beaverboard and these do not need any framework as they can be nailed direct to the front and back members.

Cut two pieces of beaverboard, the one for the floor being the same size as the platform and the one for the ceiling being left one inch wider until finally fitted.

The beaverboard on back wall, two side walls, and ceiling can be painted with some wall finish. I mention water paints because they are easily mixed and easily applied.

If the two tones are used with say the darker tone four feet high on the walls and the lighter tone on the upper wall

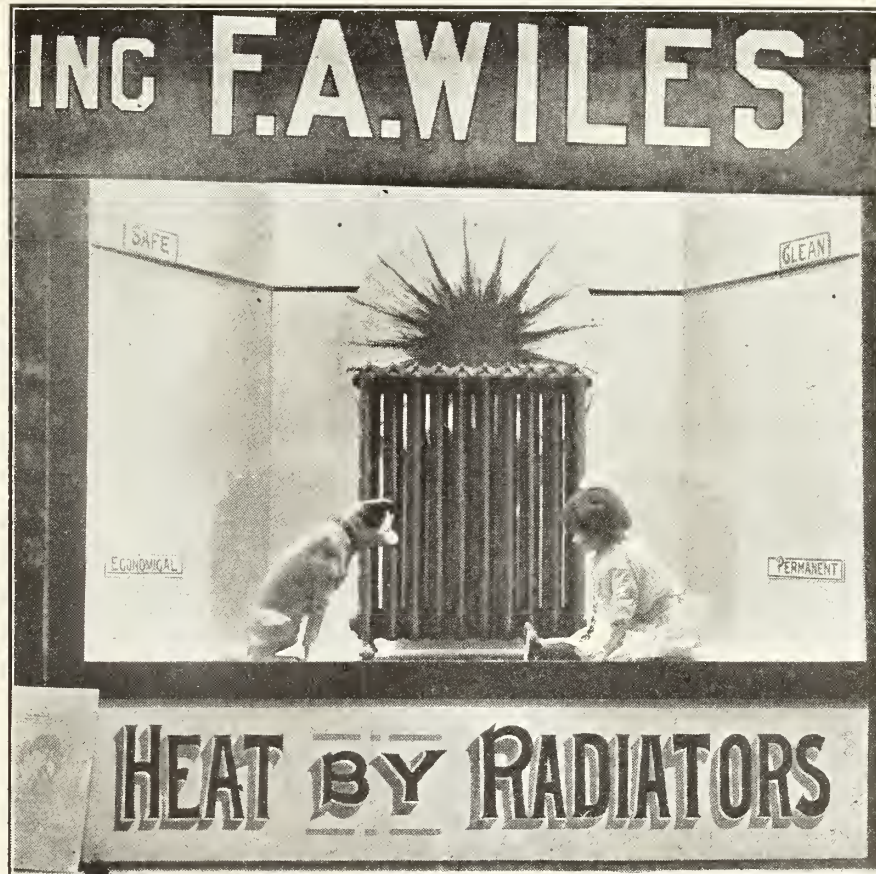
and also ceiling, then a $\frac{5}{8}$ -in. half round strip can be stained mahogany and tacked around the walls, as shown in the picture, with good effect.

You may find certain adjustments to make in this layout. For instance, this display was made where the plate glass window was nine feet long and five feet six inches high. The window proper was over five feet deep and the front frame of this picture was set some two feet in from the plate glass. The picture frame can be set to come a little above the top of the window, such distance being judged by the distance picture sets from window.

Side walls are mentioned as being two feet six inches wide but in fitting these it may be necessary to cut an inch or so off the width.

While it is necessary to make the display secure yet this can be done without

(Continued on page 30)



The window which is described fully in this article is illustrated herewith, as used by F. A. Wiles, plumber, Toronto. Such a display drives home several important points in connection with hot water heating.



"Personal Contax With the Consumering Publik"

(With apologies to Ring W. Lardner)
By

MAJOR L.L. ANTHES.

MANAGING DIRECTOR-ANTHES FOUNDRY LTD.

Tarraboome, Feb. 1, 1923

Dear Friend Al:-

THE weigh of trancessors is hard. You reemember that pome I scent you at Xmas time. Well I infurred to you I was goin to spring it on Vilet. I sprang it all rite but it was like one of these here boomerin sticks what the natuvs of Ostralia uses with the "come back." Instead of uttring some aprobriate commence on my poeticle instink Vilet handed me the midd-winter rasberry.

"Theirs only 1 brite spot in it," she sez, "and thats were you say,

The Xmas trees are all lit up,
Even as you and me."

I tumbled at onct as to wot was comin. You see me and Bill had an invite out to inspect the premices of a mutuel friend Noo Yeers Eve. Somebody had scent in a cupple of crox witch also had 2 bee inspectd. I guess the inspectn. was prety thoro for wen me and Bill started for hoam it seamed just like walkin on a mary-go-round. Howsoever we was both feelin good and wen I feel good I cant keep from signin. An wen I sign I let lose like what I ust to do on the diamond—you know me Al.

As Bill sez his feat was asleap we linqued arms and I ascorted Bill to his hoam. When we found the dore-bell I wrung it severaal timse thinkin praps the fokes was asleap. But they wasnt. Vilet opened the dore herself an wen she see us she give me a look like a meet-ax. She grabbed Bill by the arm an pulled him in. I tride to carry it off with what Frenchies calls savwar fare. I razed my hat an maid a verry low bow saying at the same time "Happy Nooyere!" Vilet slamed the dore with a bang just as I was doin my bow. I was pretty neer fallin forward as I was doin the

graceful and when the dore closed it caught me squair on the bean. Wen I come 2 I was sittin on the verandy flore wonderin wen the firewerks was goin to stop. So you can sea diplimatik relatns. between me an Vilet has bean somewhat straigned.

Well the abov is wot we mite call hoam-stuff, but the reel objek of this lettr. is to aprize you of hour efferts to get noo bizness. I bean readin sum of theze sassy articles on "How to Sell the World," an so I determined to sea if I cldn't pull off some-thin reel snappie.

1 of the artikls. was strong for what is called "Persional Contax With Consumeing Publik." It tolde how to start a maling list and lettin all the peepke in the town and serrounding distrix no that your in bizness and just bustin to do em a good tern. I didnt say nothin to nobody abt. it, but werked it all out miself untill I was reddy to spring the trap. I wanted to let Bill an Vilet no that I didnt go to sleap like the bares an suck my toze all winter. Hears the letter i fraimed up:—

Deer Sir & Maddam—Praps you dont no that weave got the swelest plumbing showroom in this part of Ontario. We invite you to come round and give us a look over. If you never had no plumbing in youre hoam you dont no wat hoam comferts is. Whare youre convenyiances such as water supplie and waste and etc. are on the outside you never no wat it is until you have it on the inside. Wots the cents of havin to dress up fer the outside wen it can all be done on the inside? I ask you this question to put to youreself. Young ladies is in the habit of wareing pumps these days. If she wants water or etc. in the winter time she has to go out to the pump or the etc. in her pumps.

Wots the result? Wet feat! Wot does wet feat leed to? To inflewenzy—to pheumonia and verry verry often to dethe!

Think ov it! Pumps—wet feat—pheumonia—dethe!

Doze it not make 1 stop to shuder? I asks you.
And all can bee pervented by inside plumbing.

If praps you have got in plumbing but the taps leek from old aige, and the bath is all outa shaip by being sat in so much on a/c of being only tinned coppar, and the seet is cracked and pinches you wen you sit down on a/c of being warped and splitt dont you think it is time for a chainge just the same as a plitical party wat has bin in offis 2 long?

If you live in the country let us show you our desine of skeptic tanks and watter presher sistems. We no we can intrist you & maik a visit to our shop a plesher and profit to awl.

Come on in and give us the onct over.

Yours truly

Emporium Plumbing & Heating Co.

Now I leeve it to you Al if that letter aint full ov meet as they say abt. the kokonut.

I feltt purty good over it and I put in xtry panes to get my spellin rite. I no it aint perfeck by no meens but I think it has a kik into it.

Well I sprang it on Bill & Vilet 1 nite & I will say for bothe of them they lissend attentif and said they was possyibilities into it. But they dident show no fitts of rapchur so you eld. notis.

"Who doo you purppos sendin the letter out to?" ast Vilet cawsully.

"Everybody in the distrik," I sez rite out.

"A lotta peeple hearaboutz has plumbing in al-reddy has they not?" she sez.

"Shure they has," I retortured.

"Then why tell them abt. outside disscomforts?"

"You dont on-derstand," I sez, "that letter is a

genral apeel to evveryboddy."

"I cann sea that," sez Vilet without turnin a hare, "but why not make it spesifick?"

"Make it wot," I sez, thinkin of horse medycine.

"Specifick," she reepeated. "That is subdyvide yer prospecks."

"You must think weer sellin reel ostate," I sez.

"O know Ime not," she came back with sang fraud, (witch is French you no for nonchallous). "You can subdyvide jer perspectif customers jest the saim as you subdyvide reel ostate."

"You meen cutt em up befoar you sell em?" I enquired sort ov purplexed. "I aint neether a buttcher or a cutt-up," I sez, thinkin their was a call for a smart retorte.

"I aint so shure you aint a cutt-up," sez Vilet soopersiliously. "If you lissen Ile explane."

"Ime all earze," I sez sittin back.

"I kin sea that," snipped back Vilet lookin at the sidze of my hed, so I shutt up and give her the flore.

"Wat I meen by subdividen yer prospex," she continyered, "is formeing them into groops. Weeve

got reckerdz of evry 1 round hear hooze got in plumbing, and wee no thoz wat has in noo jobs and them wat has old ones wat shld. be overhalled. The rest aint got enny plumming & etc. atall. Now my ideer is to maik groops of them that has & that hasnt, also them that nead a chainge and rite a speshul letter 2 each group. Ree-member I aint nockin yer skeem, I think its a good 1, but I bleeve the reesultz wd. bee better if you adop-tid the groop sis-tem.

"I dont no but wat your rite," I cummented, seein

(Cont. on page 20)



"When I come 2 I was sittin' on the verandy flore wonderin' wen the fireworks was goin' to stop."

Three Sets of Prospect Letters Brought Good Returns to Maritime Contractor

During Fall L. A. Haley Outlines Prospects in the District and Follows Them Up Vigorously During Winter Months—Only Way to Keep Up Activity in Cold Weather, He Says

IF A PLUMBING contractor wants to keep busy all through the winter he must get out and get," says L. A. Haley, one of the well-known plumbing contractors of the New Brunswick and Maine border section.

"During the late fall," continued Mr. Haley, "I list out all the prospects in my vicinity. I get the names of people who intend to build houses in the spring as well as those who might decide to install sanitary plumbing in their homes during the winter, thinking the cost would be less than at any other time. I divide the names into three classes—likely, unlikely and doubtful. To the likely class I start to send direct mail advertising such as booklets and letters. The letters are all written individually as, although the circular letters may be all right for another business, they are not the right idea for the plumbing business.

"With the unlikely list I also send out individual letters as the first assault. Afterward I follow up with a personal canvass. If the person lets me look over the ground I give him an estimate of what the job will cost. A week or so after I give the estimate, I visit the per-

son and keep him or her interested in the subject. If the person is a difficult one to convince I let time take its course but just the same I keep active and in touch with conditions.

"With the doubtful class I send the individual letter. Then I visit the quarry and give him or her (I hope it's a him) a heart to heart talk. Perhaps he does not like me personally. You know there are people with whom I was brought up who do not seem to like me and would like to give their business to strangers. However, I keep after these people and show them where I can do the work at less cost than any other contractor, and in addition I offer to give these people each written guarantees that the work will be satisfactory or if not I will make it so, without further expense to the customers.

"I have found that in order to get business it is necessary to get out after it. I would be a long while sitting in my office before enough business would come drifting in to keep me busy through the winter or summer either. I tried the waiting stuff and then I got busy, and I got results."

How a Plumber is Selling Humidifiers

Ottawa Plumbing Firm Include Humidifiers in Window Displays and Encourage Customers to Look to Them for Advice on Ventilating Questions

TAKING advantage of opportunities for the sale of humidifiers and thus increasing the relative amount of trade at this season of the year, has been one of the methods adopted by various sanitary engineers. In discussing this matter with Sanitary Engineer, Messrs. Band & Cole, of Ottawa, Ont., pointed out that they have included humidifiers in their recent window displays, and by giving publicity of the right kind to these products public interest is not only aroused therein, but gratifying trade results have been achieved.

"The average person today is not acquainted with what humidity means," said one plumber to Sanitary Engineer. The reason why he was featuring these products, he said, was that "the public look to the plumbers for information on sanitary and heating equipment and not only as to what kind of equipment is needed, but the reasons why they should install it. That is what we have been

trying to do through our window displays, retail advertising and show-card suggestions. It is our opinion," he continued, "that failure on the part of the sanitary and heating engineers to provide the public with the information desired along these lines will naturally place him in a minority position in their estimation. They will then turn elsewhere to have their curiosity satisfied or to seek this knowledge of matters pertaining to their personal welfare."

Some samples of their window cards were then pointed out. One of them read as follows:

"Warm air heating furnaces have their water pans. What about the humidity of your steam or hot water boilers? We have the ——— humidifier, which is applicable to either steam or hot water radiators."

Another one reads, "Consider the benefit derived by the whole family through the installation of the right kind of humidifiers on your radiators. These can

be installed throughout the home at a very moderate cost. They will keep the air moist, and thus protect furniture from warping and splitting. This required moisture in the air will also keep the wall-paper from peeling. Certain medical authorities advocate the use of humidifiers as a guard against sore throats."

Other advertising matter sent out by this plumber reads as follows: "From a health viewpoint alone you should not hesitate to install humidifiers in your home. They keep you healthy, they protect your furniture through keeping the air moist. They also aid distinctly in preserving good health."

"PERSONAL CONTAX WITH THE CONSUMERING PUBLIK"

(Continued from page 19)

the life of her argymnt.

"Then wat abt. heatin," she sez, "I dont sea nothin hear abt it."

I confest I hed kleen fergot about mechinon heatin.

"Furthramoar, why not run a few adds in the lokel paiper at the saim time usin some of thoze klassic kutz the annamel ferms sez theyle lend. Also put in the letters some of thoze their foulders with kutz of moddern bathrooms?"

I seen that Vilet hed bean thinkin along the saim lions as I had onlie she had thunk deaper.

"1st rait," I sez in admuration, and Bill nodded ascent.

So we went to it, goin into kawkus so to speek like the cab-nut minnisters do. it tuk a litle time to get our lissts ail in shaip and our hole campane doaped out but we finely arrivd.

We drest the windy up shown the things we was writin to the peeple abt, got our advertizen out, and then shott out the letters & foulders, follered up by more advertizin. It jarred the bank balance a bit but the publiik also bit & they bit harder that the bank balance was bit and Vilet said the xpenditure was a prophetable invesment.

I no that wee never was so bizzzy befoar. The peepul come like as if it was a Revivle Meating & I begin to undderstand wat bizness revivle ment.

Weer still sufferin from the affects of that campane but its the kind of sufferin that maiks you feal good. We had to put on severial noo jernymen and evry-boddy is doggtirde at nite. But weer happie!

Vilet has been reel kind 2 me reesently & Ime feelin bettr in consekence.

Its bedtimme & Ime awl inn so Ile tye the cann on this apissal rite hear.

Yourse as ever,
Jerry

Free Medical Advice.—"Don't buy thermometers in the summer—they are lower in winter."—The Journal of the American Medical Association.

Price Cutting Easier than Selling

But Morale of Plumbing Business Has Been Affected by Continuous Price Cutting—An Epidemic of Spinelessness—Bids on a Job Range From \$245 to \$322.50

(Written for Sanitary Engineer by Kenneth B. Allison)

MISERY loves company. By public acclaim are we, in the plumbing business, finding out what a lot of us felt, namely, that we have company in the glorious all-the-year round pastime of "beheading the prophet"—pardon me, "profit."

Some time before an article entitled "Wholesalers Seeking to End Tobacco War" appeared in a Toronto paper. I had noticed that there was a price-war on in the cigar business of Toronto. I found that a package of twenty of a well-known cigarette costs the dealer, when sales tax is added, thirty-one and a half cents and his selling price was thirty-five cents.

Yet, price cutting has reduced the selling price today to as low a figure as twenty-seven cents.

part of, or as in relation to, the total percentage of one hundred.

Therefore the wholesaler, on an average, pays 81.4% for his goods (100% minus 18.6%) and if an article costs the wholesaler \$100 then that figure is 81.4% of his selling price if said selling price is to conform with the preferential discount he enjoys. By dividing this percentage into the cost price we find this selling price to be \$122.85. If you are in doubt as to the correctness of this answer, then take 18.6% of \$122.85 and you obtain an answer of \$22.85 which deducted from the \$122.85, leaves us with our original cost of \$100.

Now the overhead expenses of some dozen wholesale houses show those expenses to run as high as 26¼% of the selling price and averaged up show 17%.

Business is, we will say, dull, and we as wholesalers, want more volume or, carrying the thought to the other extreme, business is now good and we want to get ours while the getting is good. In any case we find that price cutting, in place of salesmanship, seems to be the easier road to the increased volume so we will see how much we can cut the prices from the preferential so that we may pass all the profit along while at the same time making our way—overhead expenses.

By the method of figuring as was given above we find that on every article having a net cost of \$100 we should receive \$121.21 so that we may just clear expenses.

Some of the readers of this paper who are trade operators will probably think just about now that these figures are so close that Allison is either kidding the reader or himself.

I will defy anyone to make any radical changes in my figures, because they are plain facts.

Loss of 93 Cents On \$100 Worth

Do you in the trade realize that the giving of as small a premium as 2% by the wholesaler to you for your business causes a loss of ninety-three cents on the cost to the wholesaler of each one hundred dollars' worth of goods; that you are actually paying ninety-three cents less for the goods than their cost to the wholesaler who has just the average overhead of 17¼%?

Do you in the trade realize that an extra 5% to you means an extra 5% to a whole lot of other operators and perhaps an extra 7½% to them so that you are the difference—say 2½%—worse off by price cutting?

Do you in the trade realize that in passing that little extra on-the-side discount along, as you invariably do, you do a lesser volume of business, have a larger percentage of overhead, and have a lesser percentage of profit?

If you only, as an operator, obtain that little extra to yourself why you could shade the other fellow's bid a little, make a little extra out of the extra yourself, gather in a lot of business and go ahead like a house on fire, but unfortunately the little extra is not a secret or a special privilege because you find your competitor is beating you to it with a better price and you are seized with a fear—no, just a very, very



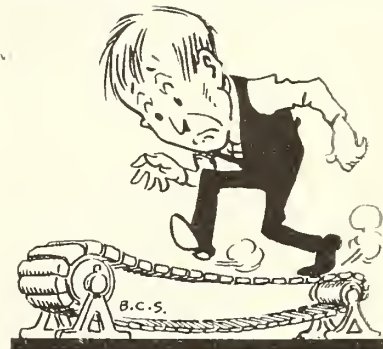
Passing that little extra discount along gives less volume of business, a larger percentage of overhead and this eats up the profit.

At the beginning of a new year, when folks have been extending the Season's Greetings with an at-peace-with-the-world disposition, it is perhaps bad taste to start stirring up trouble and suggesting all sorts of calamities as sure to happen if some of our most flagrant sins, either of commission or omission, are not rectified.

May, therefore, the abuse I give here be taken in the spirit in which it is given, as being for the common good and as not having been the result of personal jealousy. Fact is, jealousy could not have prompted this article because I trust I will never have to be reduced in the ranks sufficiently that I will find it necessary to steal, especially from myself.

The best information which I have gives me the average preferential, or margin, enjoyed by the wholesale distributor of plumbing material as 18.6%.

Writers of various articles have shown that all percentages are reckoned as a



Price cutting keeps the plumber everlastingly on the treadmill

faint suspicion that inadvertently your competitor has found a place to buy just a little cheaper than you.

If the finding of that place, or that way, would put you all back on a common buying level there might still be a chance, but no, it becomes a now-you-see-it now-you-don't game like the shell game. You—reading this article right now and being an operator in this business, YOU know you are not making the progress you should.

Nice to Stop it at the Door of Wholesaler

We have started this argument right at the door of the wholesaler. Wouldn't it be real nice if we could stop it right there? Wouldn't it be nice if we could think of this trouble as having been successfully localized, that if anything the patient, our good old friend the plumbing industry, was resting much easier now, and that there was no danger of the disease spreading and our having an epidemic—spinelessness?

But let us on and have the rest of it over with, and see how far the price-cutting bug has gone into the system of the operating plumber.

(Continued in next issue)

Questions and Answers Regarding Plumbing and Heating Practice

Further Information Re Sewage Disposal System

Editor Sanitary Engineer:

I have been a reader of your "Sanitary Engineer" for some years.

I feel I must congratulate you on the excellent answer to "New Subscriber's" problem of sewage disposal, appearing in the Dec. 1st issue. This answer was in itself worth the whole yearly subscription price.

To make the answer complete to myself, I would like to ask one question.

How would you make installation according to Fig. 2 sketch in heavy clay soil where there is not any natural grade within the area in which the installation must be made?

—H. W. R. Toronto.

of six inches. Next place the pipe on to the cinders and fill over the top and sides with more cinders until the pipes are covered over about 2 inches and not more than 3 inches.

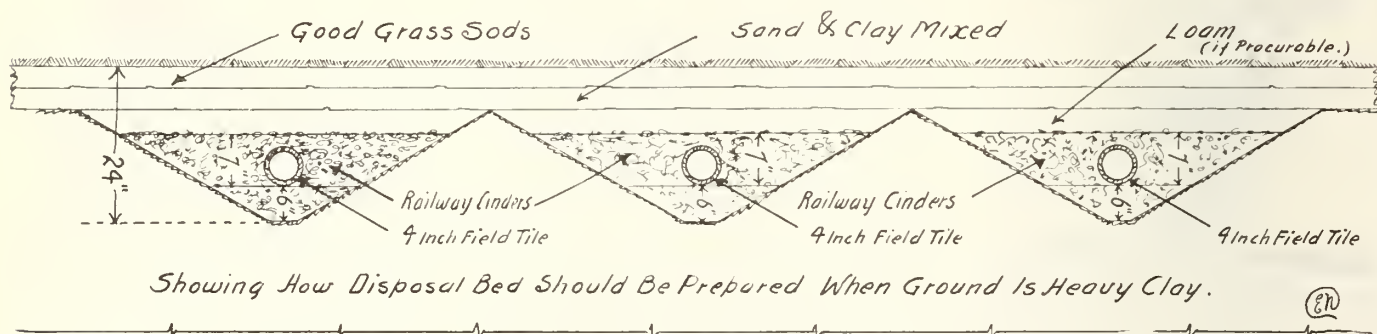
Dig the trenches as shown in sketch, Fig. 1 herewith, and then cover the cinders with a mixture of sandy soil and clay. This is, to our knowledge, the only way to make a success of a field tile area when the ground is clayey. The money spent will be worth while because, as a matter of fact, sand mixed with the clay will make good growing land, otherwise the clay is almost useless for gardening or even for a lawn.

The sodding of this area will also

feet of radiation. Radiators are usually located at each end of the house. Our method requires the running of four lines of piping to each end of the boiler which, on this type of building, is usually located about 12 feet from the front in the basement.

It has often occurred to me that the running of four lines of piping with the large labor, pipe and fitting costs for this type of building was out of proportion, making the installation appear too costly to the average builder of this type of residence.

The fact that so many in the trade are attempting to solve this question by installing many of the "57 varieties" of two-pipe jobs we see every day, I believe it would prove interesting to the majority of your readers if you could answer this question through the pages of the



NOTE.—This subscriber also asks several questions re hot water heating systems, requiring some special drawings. These latter questions will be answered in their regular order. (See below). —Editor.

Referring to the query in connection with disposal bed in clay ground, etc., the following is our solution to the problem:

In the first place, when the amount of lineal field tile has been decided upon, the area of ground must be measured and the tile pipe laid out in such a way as to have the open jointed laterals as far apart as the ground available will permit. This may mean that a greater number of glazed sewer pipes will have to be furnished but, nevertheless, they are absolutely necessary.

Next, the trenches must be dug at least six inches deeper than usual, or not less than 24 inches deep. Then fill into trench good railway cinders to a depth

make a big improvement in the sewage disposal system. One thing more before concluding. When a disposal system of piping has to be laid in such ground as is referred to by H. W. R., it is always well to provide 10 to 15 per cent. more 4-inch field tile pipe, if the area of the ground available will permit.

—Technical Editor.

H. W. R. also writes as follows regarding

Hot Water Systems

In my daily work I find some very queer attempts to install what I understand as the circuit system of hot water heating. We are still installing the regular system of piping for hot water heating, that is, with a separate system of piping for the ground floor and for the upper floors.

Our work is chiefly on medium-sized residences having from 350 to 550 square

"Sanitary Engineer," for which I could supply a plan.

The following remarks will, to some extent, serve as an introduction to what could develop into a number of valuable discussions:

For example, the intricate system of piping that goes to make up a gravity hot water heating system is largely due to the fact that piping in residences must be placed out of sight. This requires separate risers and mains for each floor and oftentimes even for an individual radiator.

Another reason, and there are many, is that very few heating contractors give vent to their imagination—too many rely upon the manufacturer of boilers and radiators to lay out a job. And often, too, the architect also gets his heating plans drawn by the above-mentioned manufacturers. This state of affairs should be viewed as pathetic by every man engaged in the business and

until we have men who begin to study for themselves the underlying principles in heating, little true progress can be made.

And if the cost of installing hot water heating systems or steam systems must come down, it will only be by the rank and file of heating contractors becoming masters of the situation and by fitting themselves to plan and lay out all their jobs in their own offices.

Then there is another reason. How long, oh how long are we going to hold to open tank hot water gravity jobs? How long are we going to refrain from acknowledging the efficiency of pressure, or closed hot water heating systems?

The answer:—Just so long as we are dependent upon others to think for us. That is about the only answer.

Hot water heating is where it was in the days of Sir Isaac Newton. No progress in the rank and file of jobs. Why not adopt closed systems with smaller pipes and smaller amount of radiation?

Why not adopt a small circulator, a mechanical means to assist circulation? Why use those light-gauge expansion tanks that are no doubt cheap but require replacing? Why not sell a heating system on its value in service instead of upon the basis of first cost?

Why not adopt a Vento system in a house and install warm air and cold air ducts in the walls? This would at least furnish some variety. And then last but not by any means least, why not adopt low-pressure steam for residences? Almost any departure from the present sameness in hot water heating systems would be welcome. And now, in conclusion, we would call our readers' attention to a new series of articles which will appear in an early issue. This series will begin with the methods adopted by men in the prehistoric age to the present, not only methods adopted in this country but in others as well.

—Technical Editor.

used the work of pumping is not harder than before the piping was installed. The whole system is laid out in the ordinary way, the pump connected to the pipe that would be fitted to the pressure supply.

A regulation range boiler and water front is connected up as shown, and it will be noted that when the pump is operated, and either the hot or cold water tap is opened, water will flow. Simply because if the cold water tap is opened and the pump is operated, cold water will not flow into the range boiler, but will simply pass up through the pipe and down to the cold water tap. On the other hand, if the hot water tap is opened, and the pump is operated, the cold water will be forced into the range boiler, through the tube to the bottom of boiler, thus forcing the hot water out at the top of the boiler and through the hot water tap, exactly in the same manner as if the range boiler were connected to a city water service, or pneumatic water supply system, with the slight addition of a safety valve as shown.

To carry water up to a bathroom at a later date, two tees could be fitted to the piping at the ceiling near to the top of the range boiler. These tees could be plugged, and then no piping need be disconnected to make the necessary additions.

This is a very simple way to overcome the use of the ordinary open tank at the back or end of a range, used as a rule on kitchen ranges in rural homes, and not only so, but by using a water front and range boiler, at least 30 gallons of hot water would be available at all times.

Furthermore, if the owner of the house wishes to procure hot water in summer time, and not put a fire in the kitchen range, a gasoline water heater could be fitted to the range boiler in the (Continued on page 30)

Farm Kitchen Water Supply

ONE of our readers wishes to know how hot and cold water can be procured at the tap in a farm home, using one pump as already used at a sink.

An ordinary cast iron sink is in use, and the waste at present is being discharged into a cesspool some distance from the house. A large soft water system is situated in the basement and a good quantity of soft water is available.

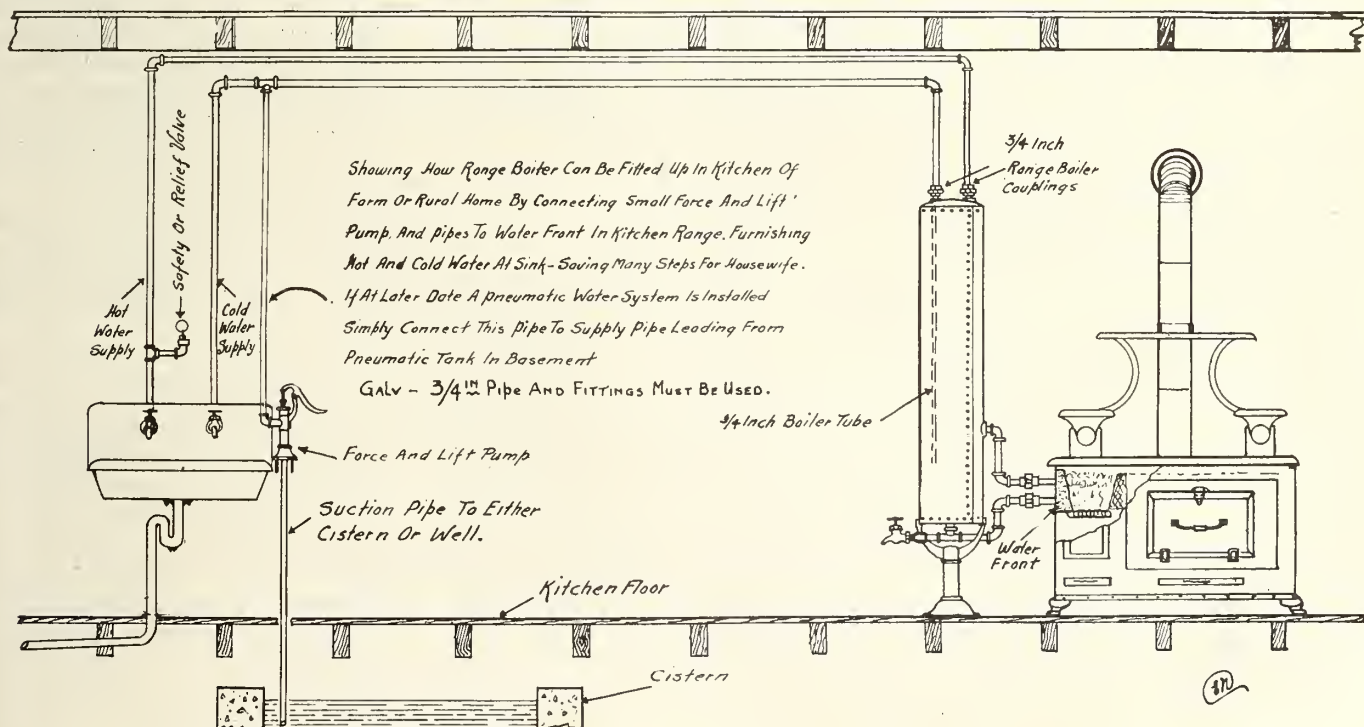
The rural resident hopes to install a pneumatic water system soon as well as a complete plumbing system. One reason for delay is that he is likely to be able to procure hydro-electric service at no far

distant date, but if some way can be found to fit up a modern kitchen now, a new kitchen will be built, and a modern sink installed now, with a new kitchen range.

The Problem Solved

The writer was asked this same question some months ago by the wife of a farmer and answered by making a drawing similar to the accompanying illustration. The pump is a force and lift type. It has a union nozzle, and so, can be connected to a system of pipes.

No piping used in a rural home should be less than $\frac{3}{4}$ inch and if this size is



The Use of Various Types of Valves

Practical Data on Globe, Angle, Cross, Check and Gate Valves
—Check Valves Looked Upon With Suspicion by Average Engineer and it is Frequently Badly Bruised—Still Some Globe Valves Connected at Wrong End

(By Herbert Smith, Ass't. Superintendent Empire Brass Mfg. Co., Ltd., London, Ont.)

PRACTICAL service requirements have developed three general classes of types of valves—First:—globe, angle and cross valves.—Second, check valves—and third, gate valves. In addition there are numerous types for special service, much as blow-off, back pressure, safety, hose, whistle, etc., but in the three classes mentioned may be grouped by far the larger majority of valves. Furthermore, the general designs of these three classes are now well standardized.

Valves must be not only strong enough and heavy enough to withstand maximum pressure to which they may be subjected, but in addition they must be capable of withstanding varying pressures and temperatures, strains of expansion and contraction, weight of piping, stresses incidental to settling, and the corrosive and cutting action of steam, gas or fluids. They must be standard—that is, all valves for similar service must as identical as is practically possible and each component part should be interchangeable.

The function of a valve is to control, regulate or change the natural course and action of the medium carried by the piping, container, connection of fixture to or in which the valve is attached.

A Grave Responsibility

The establishment engaging in the manufacture of valves assumes in these days of high steam pressures, a grave responsibility. Valuable lives and property must be safeguarded by his product, and yet the selection of valves is too often governed by their initial cost.

Suitable materials in combination with correct design, and this combination only can successfully give the service demanded by the user.

In all valves—and Globe valves in particular—on account of the stiffening of the valve seat bridge when the valve is subjected to changes of temperature, a certain warping of the valve seat is almost sure to occur. This, the seat, being the vital spot of a valve and the point of the valve which makes a success or failure of it, has led all makers of valves to try by various means to overcome the almost impossible conditions to be contended with. Where it is permissible to use it, nothing has met these conditions, so far, more successfully than a resilient disc—that is, one that would conform to any uneven sur-

faces on the seat face caused by warping of the seat, scored faces, etc. The most suitable materials used for this purpose are rubber compounded with graphite, or oxide of iron and asbestos, and then vulcanized. But up to now no resilient discs, to my knowledge, have been developed that will stand up against the action of super-heated steam, and for gasoline this disc is not to be recommended, as the gasoline disintegrates the rubber from the compound and entirely destroys the disc.

Admitting the fact that the rubber disc is to be most highly recommended as the most suitable means of overcoming most of the difficulties of successfully keeping a valve tight, we are affected by limitations of the use of same, and are left with the problem of making successful metal to metal seats.

This has been largely overcome by a careful and scientific distribution of the metal, and also by using proper proportions of the metals used in making valve brass—namely, copper, tin, lead and zinc.

In the old designs of valves, the bridge or diaphragm of the regular globe valve was simply a straight partition put across the body of the valve. We have now got a partition of circular form of carefully and evenly distributed metal which has largely eliminated the warping and twisting of the valve seat face. In Gate and Angle valves this partition is so formed that it is simply a ring attached to the walls of the body. It is not affected by distortion to the same extent as a Globe valve is.

Radiator Valves

In radiator valves used on steam the pressures rarely are higher than 20 pounds to the square inch, consequently there is no need to use a valve so heavy as a standard valve. A much lighter valve stands up to the usage and with a standard composition disc gives perfectly satisfactory service. Angle valves are used most exclusively in this service, and one point to be noted is that the seat face of the body should never be above the bottom inside level of the tail pipe, so that the radiator or pipe to which it is attached can be thoroughly drained, if necessary.

In hot water valves the service doesn't call for a valve that needs to shut off absolutely tight, and in fact some users

insist on a small hole being drilled in the cylinder to be sure that there is a slight circulation going on in the radiator at all times while the service is in commission. The reason for this is that in most cases the radiators are placed near the windows and in very low temperatures if the circulation was entirely cut off, there is a possibility of freezing and bursting the radiator.

Gate Valves

The gate valves are preferred and used by engineers wherever possible, largely because of their straight through unopposed passage ways, and for standard water service, they can be highly recommended. For steam service the principal objection to their use is that in closing the valve the disc has a tendency to cut and score the face of the valve. Some makers use the split wedge principle of the disc.

Gate valves are known as S. S. valves—that is, stationary spindle valves or non-rising spindle valves, and as rising spindle valves. Some engineers prefer a rising spindle valve, so they can see at a glance when the valve is open or shut and when they have not got height enough to allow the spindle to rise, insist on having open and shut indicators placed on the non-rising spindle valves.

When gate valves are to be used on fire service work, they should always be rising spindle or indicator valves, and if to meet underwriter requirements should be what is known as an O. S. & Y. valve, meaning an outside visible screw, free from contact with the water.

It is always advisable when taking orders for hose end valves to find out if they are for fire service and also if they are to meet underwriter requirements.

The check valve is a valve that has more uncertainty about it than any other valve that is in use, mainly because there is nothing visible from the outside to indicate whether it is functioning or not, and as it is an automatic valve depending on back pressure to close it, it always seems to be looked on with suspicion by the average engineer. This is quite evident by the fact that wherever you see a check valve in use, it is almost invariably badly bruised all over by hammer marks. It seems second nature to almost all engineers that whenever he has trouble, that the first

thing he must do is to go to the check valves and give them a severe hammering. The principal causes of trouble that a check valve gives is when they are working on pipe lines where there is trouble with water hammer, and on rapid working pump lines; and in these cases there is so much pounding on the seats that the seats and disc become pounded out of shape. This, in most cases can be remedied by reducing the lift of the valve, or by putting a spring behind the disc, or by casting a piston on top of the disc, and boring the top of the body to suit it, this creating a dash-pot to act as a shock absorber. Wherever possible it is always the most reliable to use a rubber disc in check valves as they give the most satisfactory service.

I would now like to make a few remarks about valve use and otherwise.

There are still pipe fitters who connect globe valves so that the steam, or water comes in the wrong end of the valve. The pressure or inlet end of a valve should always be under the disc. The reason for this is that if it is connected so the pressure is on top of the disc, all the working parts are exposed to erosion and wear, which is all avoided by connecting at the proper end. Some makers cast an arrow on the body to show the inlet end of valve.

It is bad practice, especially in a gate or metal disc valve, to close the spindle down the very utmost when a valve is cold, as when the steam is turned on the valve becomes heated and the spindle increased in length due to expansion.

I will now come to a subject which as a factory man has always unfavourably impressed me, and that is the way some pipe fitters use a valve when they are

installing it. It must always be kept in mind that a valve, to meet all requirements and expansion in particular, must be made of a ductile metal and this being the case a certain amount of care must be used in installing it. If a pipe fitter places a pipe in his vice and then grips the opposite end of a brass valve with the largest pipe tongs he has, and screws it up home with all his force, the chances are that he will spring the valve out of shape and is usually astonished to find the valve leaking. He will resent any suggestion that he might be the cause of it, but from my own observation and the mutilated condition of returned valves that have passed through my hands, I feel justified in saying that there are still some pipe fitters who have yet to learn that a valve should be put on by gripping the end nearest to the pipe.

Helps for February Advertising

Some Suggested Paragraphs Which Sanitary and Heating Engineers May Use to Advantage in Planning Advertising During This Month

"KITCHEN PLUMBING"

Just as essential as the bathroom plumbing, and your heating system, is the plumbing in the kitchen. No matter what the job may be if you secure our services it will be done right.—L. H. Eckhardt, Vancouver, B. C.

* * * *

"PUT THE BATH TUB IN NOW"

Now is the time in this season to put in that bath tub you have been thinking about. See us about it for we can give you interesting prices and guaranteed workmanship. See us in regard to any information concerning plumbing, hot water or steam heating. It will be to our mutual benefit.—T. J. Minnes, Brantford, Ont.

* * * *

"MAKE YOUR BATHROOM DISTINCTIVE"

Bathrooms that are ordinary can, with the aid of a few small fittings, be made distinctive and expressive of the good taste of the housewife. Your bathroom equipped with our towel bars, sponge holders, tooth brush holders, tumbler holders, plate glass mirrors, white enamel cabinets, nickel-plated electric brackets, etc., will add wonderfully to the appearance as well as to your comfort. A goodly display of these fixtures may be seen in our showroom.—Cowans, Brantford, Ont.

* * * *

"SAFEGUARD THE CHILDREN"

While in the home you mothers and fathers take every care to safeguard the health of your children. But do you know if proper care is taken to protect your children while at school or in other public places?

It is your right and duty to demand that adequate protection be given your children in such public places in respect to toilet and washroom accommodation, ventilation, drinking water, etc.

Let us know what your investigation proves and we will help you bring about better sanitary conditions in such places.

(Suggested ad. Name of firm here)

"END YOUR PLUMBING TROUBLES"

Don't wait for a small leak to grow bigger. Have it fixed now. It costs less in the end. Call us at the first sign of faulty pipes or faucets and your plumbing troubles will be ended almost before they have begun.—W. L. Armour, Brantford, Ont.

* * * *

"EXTRA HEAT OR HEAT YOU ARE NOT GETTING"

Possibly there are one or two radiators that do not heat. Have our plumbing department examine them and see where the fault is. You may desire more hot water from your range boiler. Let us connect it to your furnace with a large Domestic Heater. (By McKelvey & Birch Ltd., Kingston, Ont.)

* * * *

"LAUNDRY COMFORT"

During the winter it is often found that the basement is not suited for laundry purposes. We have what is called a laundry sink, which is a white enamel laundry tub, and a deep kitchen sink combined. It can be installed in your kitchen. Space required is only four feet. When the laundry tub is not in use there is a cover which closes and acts as a drain board to the sink.—McKelvey & Birch Ltd., Kingston, Ont.

* * * *

WHAT ABOUT UNSEEN PLUMBING?

It's unseen; but it's there—between walls, under floors, buried in the ground. One-third of the cost for any good plumbing job is for that "unseen" work. We believe that no part of a plumbing job is more important than the "unseen" plumbing. We know that unless "unseen" work is done right the first time, using the proper materials and workmanship, there is sure to be costly trouble later! Trouble in the "unseen" plumbing means expensive tearing out and replacement of walls and floors, with the added cost of repairing the faulty work. Our "unseen" plumbing stands the test of time and constant use. Our customers will tell you so. It will be to your advantage to consult us about any new installation or remodelling job.—Paddon Company, Limited, Windsor, Ont.

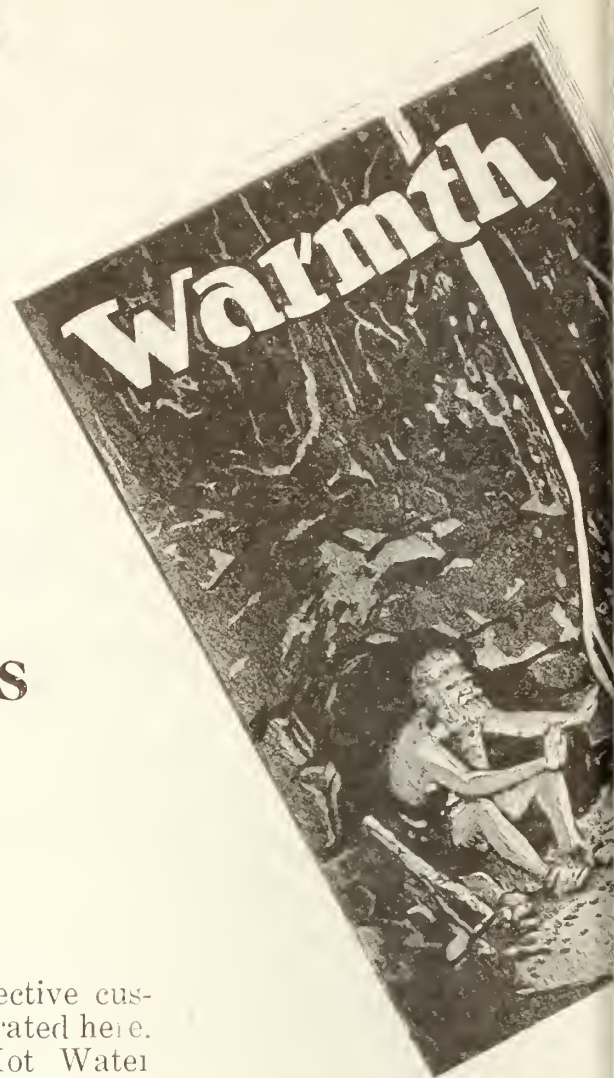
Gurney

Service

Helping Our Dealers Make Hot Water Heating Sales.

WE ARE distributing to many of your prospective customers copies of the "Warmth" booklet illustrated here. In "Warmth" we tell of the advantages of Hot Water Heating in general and, of course, Gurney Heating in particular. We are rather proud of the way we have depicted our products, showing them both in relief and as they appear in use. Each illustration in three and four colors, brings the subject of heating before your prospects in a very attractive manner, gets them interested in Gurney heating, and makes it an easy matter to close the contract.

If you have any prospects in view (if you haven't, dig some up), send us their names and let us send them a copy for you. Or, perhaps you would like to mail them yourself? If so, we will supply the books.



*Whichever you
Do it to-*

THE GURNEY FOUNDRY COMPANY
LIMITED

TORONTO and MONTREAL

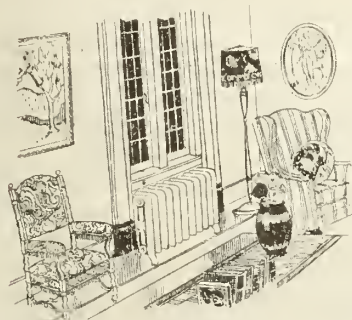
WINNIPEG

VANCOUVER

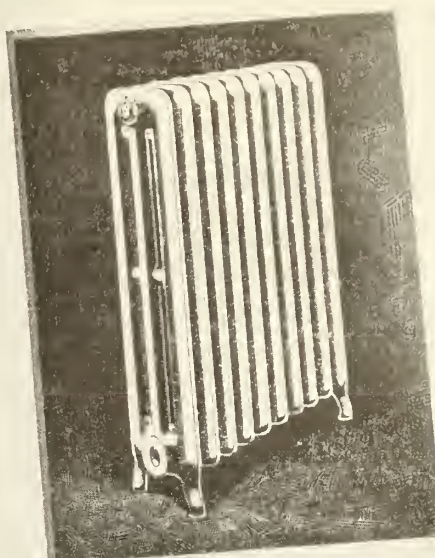
Warmth—A Necessity

The Living Room

HERE you spend your evenings, and it is here that you are justified in expecting comfort during the long winter evenings. Space is seldom such a consideration as in the hall and for that reason, a three column radiator, which has more heating surface for its length, is usually used. The Gurney Beaver pattern three column radiator is modelled in the same chaste beauty as the two column. This design lends itself admirably to any style of decoration and is quite at home in any surroundings.



Warmth—A Necessity



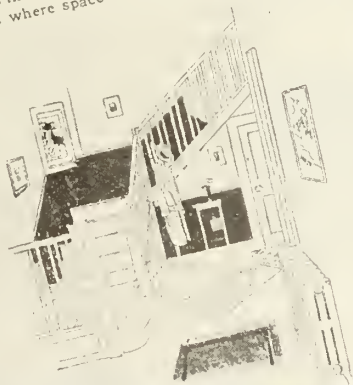
3-Column Gurney Radiator.
"Beaver Pattern."

Warmth—A Necessity

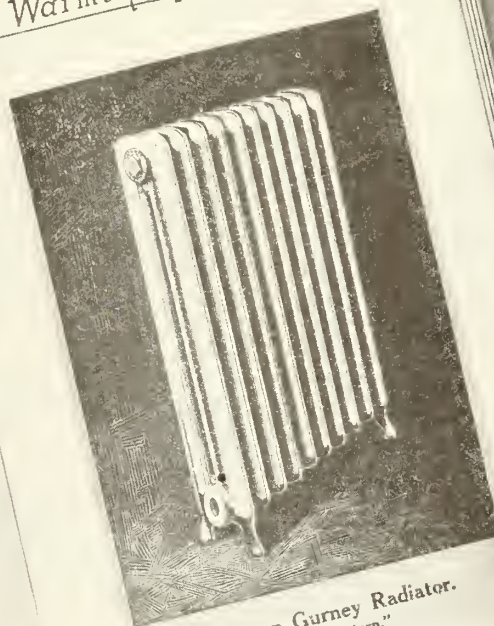
In The Hall

YOUR guests receive their first impression of you and your hospitality as they enter your door. Consequently the hall should be well heated.

In the average hall very little space is available, for that reason a two column radiator is quite often suitable. The Gurney Beaver pattern two column radiator is of a simple, yet artistic design, which breathes an air of refinement. The manner in which it hugs the wall adapts it particularly to the places where space is a consideration.



Warmth—A Necessity



2-Column Gurney Radiator.
"Beaver Pattern."

Sanitary Engineer

Plumber and Steamfitter of Canada

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FEBRUARY 1, 1923

No. 3

Plumber Has Advantage

A COMMITTEE has been appointed by the American Gas Association to deal with "co-operation with the plumber and heating dealer." This bears out the theme of the discussion at the last convention of the association when the advantages of closer relationship between the gas companies and the plumbers were dealt with. There is no doubt that more co-operation between these two factors will do much to further the interests of both in the sale of gas appliances and the consumption of gas.

The plumber is very much in the home, especially in the new home being finished. He is in close touch with the builder and can act in a more or less advisory capacity where he can do much good work in having sufficient gas facilities provided. This is where the plumber has a big advantage over the gas company and he should be able to turn it to good advantage.

Prospects Good for Year

IN THE whole field of Canadian industry it is doubtful whether the year 1922 can show any achievement so thoroughly gratifying as in building. It has been an almost epochal period. Not only has it witnessed a remarkable expansion in the volume and value of work accomplished, but it has seen, after two most trying and uncertain years, the restoration of conditions as nearly normal as possible. That is, labor has bent its efforts toward the attainment of greater productivity; capital has loosened slightly; the market for materials has reached comparative stability; demand has been sustained in healthy and increasing activity; all of which factors have contributed to a marked quickening of the pulse of the construction trades, and to a promise of even larger expansion to follow.

Ninety million dollars more contracts awarded in Canada during 1922 than the previous year. Statistics show total construction undertaken to a value of \$331,843,800, compared with \$240,133,300 in 1921. Even in 1920—a year of feverish expansion and inflated costs—the monetary value of new building was \$75,000,000 less than last year. In actual volume of work performed the 1922 total may be placed 70 per cent. above that of 1920, due allowance being made for the present lower scale of costs. Going farther back, the figures of 1917, 1918 and 1919 at \$87,298,062, \$99,842,300 and \$189,821,300, respectively, look insignificant in comparison. Indeed, not since the pre-war period, when for three years (1911-13) the whole country enjoyed a phase of unwonted prosperity and develop-

ment, has any aggregate been recorded to equal that of last year. The month of December gave rise to \$52,472,400 of fresh projects, this being the largest monthly aggregate since April, 1913, and one which has been exceeded only three times in the annals of Canadian building. A glance at the details, showing classification of work undertaken, draws attention to the importance latterly assumed by residential and engineering construction.

Plumbers' Wages and Building Cost

WHETHER the aggressive assault made during the year on the housing problem has taken much of the edge off demand is difficult to say. A year ago it was estimated upon reliable authority that the actual shortage of homes in Canada, if people were living according to pre-war standards of accommodation, was 165,000. During the year some 21,000 new houses were built. The potential demand would, therefore, appear to be little abated. Yet the estimate of 165,000 houses represents rather what the country would require if it could finance its full needs. It is not the "effective demand." The latter, however, has been sharpened by a psychological factor, namely the growing popular belief that building costs have now fallen to a point where prospective builders have little to gain by further delay. So important is this factor that it will probably result in the production of even more houses in the coming year than in the past.

Wage scales declined slightly in the year. The Federal Department of Labor, in reporting the index number of wages paid to six main groups of building trades in 13 cities, quotes 162.5 for 1922, as against 170.5 a year ago. The abrupt advance in wages during 1919 and 1920, and subsequent slow decline, are illustrated in the following table, which shows average hourly rates for five years back:

Year	Bricklayers	Carpenters	Electricians	Painters	Plumbers	Blkrs. & Laborers
1918	\$.70	.57	.57	.52	.60	.40
1919 .....	.79	.67	.68	.61	.69	.49
1920	1.02	.79	.81	.73	.83	.56
1921	1.00	.78	.80	.73	.80	.52
1922 .....	.96	.70	.75	.67	.80	.46

Inspiration for Young Men

TWO OF Chicago's biggest business men recently stepped out of commercial life and were succeeded by young men trained in their own organizations. John G. Shedd, whom Marshall Field called "the world's greatest merchant," retired from the presidency of Marshall Field and Co. where he had started as a \$10 a week clerk. He was succeeded by James Simpson, who began his career as an office boy. The man who took Simpson's place as vice-president also started as an office boy.

J. Ogden Armour also resigned a presidency last week. The new president of the gigantic Armour packing interests is F. Edison White. White began his career at the age of seventeen in the blood and slime of the packing house. He worked on the killing floor for a year. Within ten years of that time he was assistant to one of the company's vice-presidents.

In the careers of Shedd, Simpson and White there is inspiration for any young man. Every one of them started at the bottom. Every one has reached the top. No one of them has any particular advantages as to education—merely determination and common sense and a recognition of the duty of big companies in serving the public well.

The Mirrors of Selling Street

Don't Let Them Reflect Upon You!

Plumbers will appreciate the "reflections" contained in the following—article. This appeared in the January 6 issue of Forbes Magazine, from the pen of John E. Rosser. Sensing its interest for the sanitary engineer, as well as the lesson it contains for salesmen and distributors, Sanitary Engineer reproduces the story for the benefit of its readers.

RUB R. STAMP has one virtue: he can repeat whatever is told him. In that regard he ranks along with the Poll parrot and the phonograph. He has the sprightly imagination of a cod-fish on ice. In school he was the little boy who always began a recitation by saying, "The book says—"

He has put in many an hour memorizing a lot of stuff about "go-getters" and "red-blooded he-men" but he never

Rub R. Stamp



The chap who knows his sales-talk but gets lockjaw when he's asked a question

has got to the part of the book that presents problems involving unknown quantities. He knows several good swimming strokes, and yet, if he accidentally fell into the creek, he would surely drown unless somebody threw him a chart and compass.

Stamp is the chap (unless Joe Miller deliberately lied about it!) who staked his week's salary on the champeen fightin' dog. This dog had just one manner of attack—always diving under the belly of his opponent and getting a death-grip on the left hind leg. One day along came a fellow who entered a dog that didn't carry with him a single solitary left hind leg. And, of course, the flabbergasted champeen was chewed to a deckle-edged frazzle because he didn't have resourcefulness enough to play a new system.

Rub R. Stamp gets along well enough with his canned spiel until his prospect shoots a query at him; then it's amateur night for him, and he finds himself ignominiously yanked off the stage of

action, with a question-mark gagging him tightly about the gooze.

He will always be in demand for a job where somebody is needed to say "cuckoo" on the hour, or where a moist tongue is required for postage stamps, or a quickly portable hatrack is desired for the outer hall.

L. Urid Glare is a gifted liar. Since he plays only one-night stands it is merely a question of time until he has used up all the towns there are and is then compelled to get off the earth. Anybody who is good at riddles can easily figure out where Glare will go when he does leave this sphere, but the quotations don't indicate any jump in the prices of real estate in his destined abode because of his expected coming.

He is like a twenty-dollar bill run off with a hand-press in the far corner of the cellar, for he is fair enough to look at, but it is a felony to have him in one's possession. To his selling talk he adds whatever neat little touch is necessary to make it sound well. His gaze is extremely brazen, but at heart he is so cowardly he fears his own shadow, which at least has the solid virtue of sticking with its boss—a quality which Glare does not possess.

L. Urid Glare ignores the fact that Truth is the best ally anybody can have and that the dreamer-liar makes for himself an impossibly hard job. He forgets that we live in a world of realities—a very practical, matter-of-fact world—which, with all its imperfections, is

L. Urid Glare



The promising Salesman-- who always lets it go at that

yet sound enough to build skyscrapers upon—provided we set the walls up straight.

He can't bring himself to place trust in the world as it is. That is because he is himself a weakling. One day he may find that weakness exists primarily within himself, and that outside him—like the magnetic lines of force that play from pole to pole—are truth and strength in abundance. Then he may become the chap it is possible for him to become.

Certainly he will stop lying.

Rely Upon "Steam"

Hap Hazard is a lineal descendant of the Hopheads on the maternal side and

Hap Hazard



The Salesman who is always yawping about the future --but he's a man-eating shark at Kelly pool

of the widely distributed family of Hooch-Hounds on the paternal. His favorite character in fiction is Mr. Micawber, and he has a fine business acumen of Colonel Mulberry Sellers.

On a tour through the Latin countries the only word of their lingo that he acquired was "Manana," and this will be the legend on his coat-of-arms when he gets time to rig one up. Just now he is snoozing sweetly and must not be disturbed.

In the vacuum which he is pleased to call his mind he has two sure-fire projects for achieving great prosperity some time in the future: the first, to unearth the treasures known to be contained in a crock buried at the rainbow's end; and, the second, to form an association of blowhards, like himself, who shall dry up the ocean above sunken vessels, thus producing perfectly dry holes from which it will be a simple trick to remove the precious cargoes.

Facts just make Hap Hazard desper-

ately sick; the law of cause and effect easily prostrates him.

Around the merry pool table he finds real cronies. Of course, the salary of a journeyman pool-player is not a vast sum, but the members of the gang are agreed that if one of them discovers perpetual motion of Captain Kidd's treasure they will all share in the proceeds; so anybody can see how unnecessary work is.

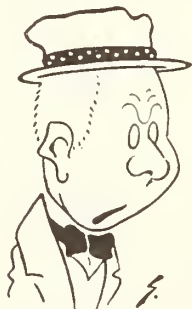
Hap Hazard's brain tests up at a fraction less than one cockroach power, but his crop of hair, firmly set in ivory, makes a fine floor mop, and prevents his being a total loss.

He won't become any more valuable to himself or to anybody else until he substitutes will-power for his present highly developed wish-power, and begins to rely upon steam instead of a dream.

Have Ammunition Ready

There are many things the matter with Luke Warm, but his most obvious

Luke Warm



**The Salesman
whose gunning
outfit includes
everything but
the shells**

defect is that he is a damphool. He has a way of neglecting to take along with him the selling equipment which his firm provides. He carries nothing with which to support his argument in case he finds himself in the lair of a prospect who, being originally a resident of old Show-Me County, Missouri, demands to see the salesman's credentials and Exhibits "A" to "Z" of the wares he offers for sale.

Luke has heard something about the power of the hypnotic eye. Someone told him about a very strong salesman who made effective use of direct talk, with no documents or samples in sight, but he doesn't seem to know that the twelve-cylinder salesman had gumption enough to discern that he had encountered a particular case and that the next man might hanker to see the credentials of the house. The strong man had the dope with him, all right, but he did not pull it out that time.

Luke doesn't take his outfit along for the simple reason that he hasn't wit enough to figure out in advance what

he will need in a tight place. Roosevelt never killed anybody, but if he ever had committed murder, the victim would surely have been the movie cameraman who went out to Oyster Bay, persuaded Teddy to quit an important conference, dress up in riding togs, have his favorite horse saddled, and canter down the Sagamore Hill path—and then find that the photographer had failed to bring any film along. That was all that kept the party from being a great success.

He may come painfully to learn that all the gods on Olympus couldn't do anything for a fool—and he may try to cease being one. Then, every day, he'll figure out in advance whatever may be necessary for the day's work, and he'll have his ammunition handy when the game is flushed.

FARM KITCHEN WATER SUPPLY

(Continued from page 23)

same way as would be connected up in a city home. Such an installation, as shown and described here, would prove to be a great help to every rural housewife, saving many steps and much time.

SHOWS COMFORT OF "HEAT BY RADIATORS"

(Continued from page 17)

excessive use of heavy lumber. Into the top of the corners of front frame screw two screw eyes and from these run stove pipe wire to four points, two in front and two to back of picture. Make these points well to the side and at least a little above the picture, and in tightening the wire, which is quite unnoticeable, one can easily line up the framework to be straight.

Where beaverboard is inclined to not fit true or show ragged the use of quarter round, or shoestrip, will overcome this.

In sawing beaverboard always keep the finished surface nearest to the saw hand but roughness can be easily removed by a rub of sandpaper along the edges.

If the entire back and sides, wood and beaverboard, are also tinted with the same color or paint a much cleaner view is given on the store side.

If you will create a space where this material you have used here can be stored away and kept clean, then you will find that, after you have done three or four different windows, you have equipment for a steady change of window trim with very little future expenditure. The small pieces of beaverboard are useful for future windows and can be used any number of times. Be sure to keep in a dry place.

Paint Floor Brown

The floor should be painted a brown or any harmonizing color for oak.

Wire in two concealed cleat receptacles inside the top member of front framework with two 40 watt bulbs for lighting.

Procure a radiator of a size say 2 x 10 x 32 and screw the necessary valve and

air vent in. See that the radiator is at least clean, if not painted.

Set up a doll and a dog as shown.

Make the four small signs and place on the side walls.

Cut a circular piece of beaverboard about twenty-four inches in diameter and a reasonably recognizable sun can be made by a blotch of red in the center, with shafts of yellow and white paint (water or oil) worked to points at the edge.

Paint a sign, on beaverboard eighteen inches wide by six feet six inches long, with the words "Heat by Radiators." You may have to have these signs done by a show card writer.

Granted that you have to do this then the material for this window should not cost more than \$12.00 as follows:—

3—4 x 8 sheets of Beaverboard ...	5.76
Lumber .....	.75
Mahogany stain .....	.45
Water paint (1 color) .....	.45
Angle brackets or plate (10) .....	.50
Nails .....	.09
Showcards	4.00

\$12.00

If the lights in the picture alone are used, larger ones may be better, with the surroundings in darkness you will find that this window will stand out very prominently and because of its out-of-the-ordinary appearance will cause many to stop and view it.

Catalogs and Booklets

Those interested in any of the catalogs described below can procure a copy of the same by writing direct to these firms. Mention that you noticed this in Sanitary Engineer.

HOME INSTRUCTION FOR SHEET METAL WORKERS

A new book entitled, Home Instruction for Sheet Metal Workers, is being published by the U. P. C. Book Co., Inc., of New York City. This book contains much practical information on sheet metal and building in general. It is by William Neubecker, and edited by Frank X. Morie. There are over 400 pages and 684 illustrations. There are also fifteen folding charts in a separate binder, which are intended for use in conjunction with the instruction manual. It includes instructions on cutting, forming, soldering, preparing full-size details from architects blue-prints, developing the patterns, laying out the work on sheet metal, and setting the work together. Other features in the book are chapters on skylight and louvre work, including flat, hipped and pitched skylights, stationary and movable louvres, turret sash, gearing, etc.

WARMTH—A NECESSITY

"Warmth—A Necessity," is the title of a new booklet issued by the Gurney Foundry Co., Ltd., Toronto. This book is a brief treatise on mankind's necessity for warmth. It pictures a comparison between the darkness and chill of winter's night scenes compared with the warmth of the modern heated home. It is aptly illustrated throughout, special drawings illustrating the radiation of heat, attracting attention. This booklet also draws attention to the Gurney "G" series of round hot water boilers. The various types of radiators applicable to different styles of rooms, is another feature in this handy book.

Patterns for Octagonal Branch

By O. W. Kothe, Principal, St. Louis Technical Institute, St. Louis, Missouri. Written for Sanitary Engineer.

AS A PROBLEM of development, the octagonal branch is interesting, in that it shows the features clear as an instruction problem, than a round branch. Sheet metal construction is one of geometry and hence pattern drafting forms part of the sheet metal worker's education; but it is not all that is required. The matter of design and proportion and calculation is equally important to the laying out of patterns. In fact, the mere pattern drafting is more for the layman mechanic, while the design, proportion and engineering part of it as well as the pattern drafting is for the foreman, superintendent and employer.

In taking on our branch in this drawing, we first draw the axis line of branch and proportion the base to section A and then draw section B, after which section C is developed. After this the elevation is divided into triangles and for these triangles diagram of true lengths is constructed. That is picking the lines from the elevation as 2-3; 3-4; 4-5; 5-6,

etc., and setting them on a horizontal line in diagram, after which lines are erected to equal those in the sections. This will give the true flare between the points of the section and produces the true lengths.

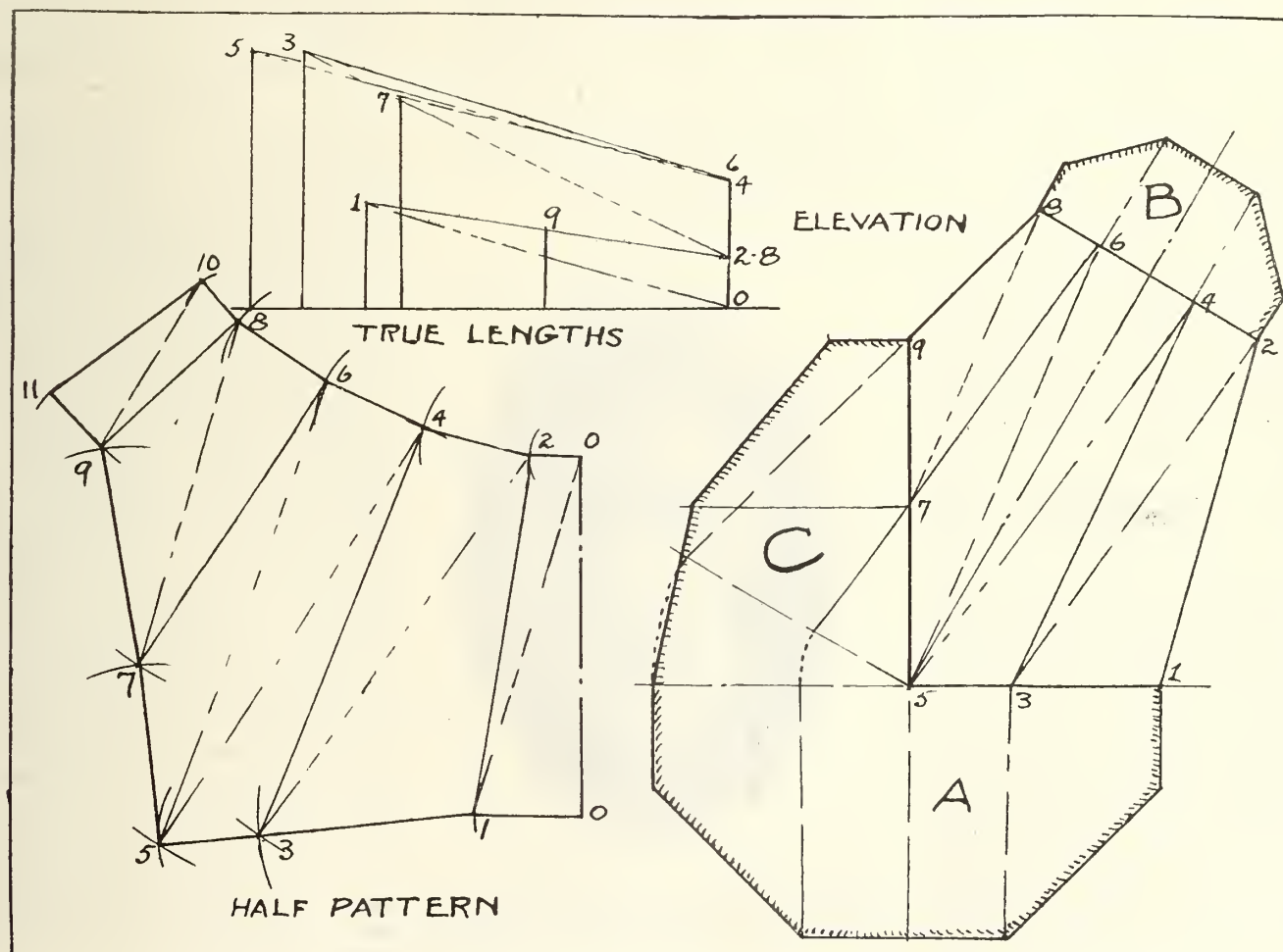
After this the pattern can be set out by drawing a line 0-0 equal to 1-2 of elevation. Then square out lines in patterns as 0-1 and 0-2, making those distances equal to the points in section A and also in B, which will give lines 1-2 in pattern. This can also be done by picking line 0-1 and setting as 0-1 in pattern and then picking line 1-2 in diagram and setting as 1-2 in pattern. Then pick the octagonal lines from B and also from A and strike the arcs 3 and 4, as shown. Cross these lines with true lines 2-3 and 3-4 from diagram. Repeat in this way until points 10-11 are established and draw lines through all points where arcs cross and the pattern is finished. Laps for assembling should be allowed extra. draw lines through all points where arcs cross and the pattern is finished. Laps for assembling should be allowed extra.

WATER PLANT MAY START IN 1924

Windsor.—The Border cities can have their water filtration plant in operation late in 1924, J. Clark Keith, engineer of the Essex Border Utilities Commission, said following the announcement that the project had been approved in Ford, Sandwich and Riverside.

"I am confident that we can complete the plant by that time," said Mr. Keith. "It's up to the commission, however. Just how fast they will want to go ahead with the project, now that they have been given a mandate from the ratepayers, I do not know."

"The plans we have made to date have only been very general ones; just detailed enough for us to compile our estimate of cost. They will have to be prepared in detail, and a great deal of preliminary organization work will have to be done. But, with all of this, I am confident that we can begin the delivery of filtered water by the end of 1924 if the commission wants to push construction work."



News Notes From Coast to Coast

CONTRACTS AWARDED

London, Ont.—Liphardt Bros., Waterloo, have plumbing contract for new school in the south ward of the town.

OBITUARY

The sympathy of the trade is extended to John Wright, Toronto, in the death on January 30 of his wife. Mr. Wright has long been prominent in the plumbing industry and has held several important offices in the provincial and Dominion plumbing societies.

INCORPORATION

Victoria, B. C.—Incorporation of the Andrew Sheret, Limited, covering the interests of Mr. Andrew Sheret, for many years conducting a plumbing business in this city, is announced in the current number of the Provincial Gazette.

STEAMFITTER OVERCOME BY GAS

Montreal.—While repairing gas pipes, 1. Chevalier, steamfitter, residing at 271 Gauthier street, was overcome by gas and had to be removed to the Notre Dame Hospital. He was kept there overnight but had so far recovered that he was able to leave the hospital and go to his home.

HAMILTON SOCIETY ELECTS OFFICERS FOR 1923

On Monday evening, January 22nd, the Hamilton Society of Sanitary & Heating Engineers held their annual election of officers. The new officers for 1923 are President, P. A. Moore. Vice-President, Wm. Newell; Secty.-Treas., C. G. Stewart; Assistant Secty., Thos. E. Arthur.

GROUP ALL INSPECTORS UNDER ONE HEAD

Montreal.—Creation of a Civic Inspection Department in which will be centralized the functions of inspectors now operating under four separate city departments is among proposals for reorganization of City Hall services planned for 1923.

With the allotment of one inspector to one district, it is claimed that the man would soon become familiar with all conditions in his area, would be able to report on them more intelligently than one man can when passing from one new place to another, and that inspection therefore would be tightened up, to the benefit of both city and taxpayers.

Doings in the Plumbing and Heating Industry

WANT TENDERS

Grimsby, Ont.—Town council wants tenders on installation of a hot-water heating system in fire hall. No closing date set.

INCINERATOR AS CENTRAL HEATING PLANT

St. John, N. B.—Although it has not been discussed publicly, some of St. John's citizens are of the opinion that a local incinerator might be used as a central heating plant, and in that way bring in a revenue of a considerable amount to the city's funds.

NEW PUMP IS NOW BEING INSTALLED

Lethbridge, Alta.—The American Well company, of Aurora, Ill., are now installing the new waterworks pump to take the place of the one which failed to live up to the guarantee. The capacity of this pump is four million imperial gallons per day. The average amount of water pumped per day is one and a half million gallons. This will put the city well within the requirements of the board of insurance underwriters in the matter of pumping capacity.



THOS. E. ARTHUR

Elected Assistant-Secretary of Hamilton Society of Sanitary and Heating Engineers.

PLUMBING CONTRACTOR HAS EXCITING STRUGGLE WITH WILDCAT

St. John, N. B.—For an hour, struggling against a wildcat, A. P. Conwell, of Sussex, N. B., one of the well-known plumbing and heating contractors of Eastern Canada, had a very exciting and menacing experience.

Mr. Conwell was in the woods on a rabbit-shooting trip with one of his young sons. As he was walking through a grove of trees a wildcat sprang from the boughs. It missed Mr. Conwell and landed nearby in the snow, the contractor having heard the warning rustle overhead and dodged just in time. The wildcat sprang at Mr. Conwell from the snow and fastened its claws in his flesh about the legs. Mr. Conwell used the shotgun he carried very effectively on the ferocious animal, but although he forced the wildcat to release its hold a number of times, the animal would return to the attack after a pause.

Mr. Conwell's young son brought two farmers, who shot the animal. Mr. Conwell was carried to a farmhouse and given first aid. In a few hours he was able to walk home to Sussex.

WANT PUBLIC CONVENIENCES IN ST. JOHN

St. John, N. B.—A problem which has long been before the citizens is that of public conveniences. Although St. John has a population of around eighty thousand, there are no premises set aside for the convenience of the public. Although practically every citizen has at one time or another commented on the situation, and some years ago the matter was placed before the city council by one of its members, nothing has been done in the matter, and therefore things remain as they were. However, in certain circles, the matter is again coming under discussion, and Sanitary Engineer's representative has been informed that it will not be long before it is pointed out to the city council that two or three buildings could be erected in the city of St. John for the convenience of the public, and made self-supporting. It was pointed out to our representative that in the centre of the city it would be possible to have premises underground for ladies and gentlemen, with a small charge for use of W. C. and for a wash and brush up. A shoe shine could also be run in connection with the service. It is not known what attitude the city council may take when this question is brought up, but it is believed that if the city fathers could be convinced that such places can be made self-supporting, they would carry the thing through.

WILL LAY OUT HEATING FOR VESSELS

Windsor.—Donald Stewart, consulting engineer in heating and radiation, has been retained to lay out the heating and ventilation systems on the Detroit and Cleveland Navigation Company's two new boats. The boats, which are nearing completion, are 600 feet long, the largest inland navigation vessels in the world.

CUNNINGHAM & HILL PROPERTIES NOT AFFECTED

In an item referring to transfers of property in Toronto, a daily newspaper erroneously stated that the properties of W. H. Cunningham & Hill, Ltd., wholesale plumbing and heating specialties, had been sold. W. H. Cunningham stated to Sanitary Engineer that his properties at 269 and 271 Richmond St. W., Toronto, had not been affected in this manner.

ADVISES JANITORS TO TAKE PLUMBING COURSE

London, Ont.—A rather unique suggestion was made at a meeting of building committee of Board of Education when, during a discussion over cost of plumbing repairs in city schools, Trustee Mrs. Hunt suggested that the janitors be given a short course in pipe fitting and plumbing at the Technical School, so that they could take charge of all minor repairs of this sort.

Trustee Lawrason expressed the opinion that small repairs should be taken care of by the school caretakers, but Trustee Willmot was of the opinion that such an undertaking might involve the purchase of a large amount of expensive tools for the various schools where this work was being done.

Superintendent Robinson, however, pointed out that the works department already has complete equipment of tools and in the case of small repairs the janitor already does the work. In some cases, however, it would be rather an expensive undertaking to allow an inexperienced man to repair or renew plumbing when the job required a skilled workman.

Trustee Mrs. Hunt then voiced her suggestion that the janitors be trained in this work. It was a matter well worth investigating, she said. The Technical School had the facilities and the men could be trained at no expense to the board in their spare time.

Trustee Lawrason thought that a janitor qualified to take charge of a boiler and with a stationary engineer's certificate should be able to take charge of minor work of this sort.

No action was taken but the matter will undoubtedly be discussed at a later date.



C. G. STEWART

Elected Secretary-Treasurer Hamilton Society of Sanitary and Heating Engineers.

WILL INSTALL NEW SOFTENING PLANT AT POWER HOUSE

Moose Jaw, Sask.—The city electric superintendent, J. D. Peters, placed before the city council, through the city

commissioners, a recommendation calling for the installation of an additional water softening plant at a cost of \$1,877 f.o.b. Toronto, or about \$1,900 laid down in this city. The superintendent mentioned that the plant at present installed did excellent work, but was only capable of handling about half of the raw water that was used. The intention when the plant was installed had been that the system should be a two-unit one, and the superintendent therefore now recommended the purchase of the additional machinery.

FIND FARM HOME LACKS DEVICES TO SAVE LABOR

Brandon, Man.—Delegates to the United Farmers' convention occupied the greater part of the morning session in discussing the survey of rural conditions made by the farm women. This survey brought out a lack of labor-saving devices in the convention that a greater degree of comfort and content among the farm women would do more to advertise the agricultural advantages of Western Canada than many immigration agents. The United Farm Women are to continue their rural survey and the present exhaustive report will be printed and given with circulation in an effort to raise the status of comfort and convenience in Manitoba farm homes.

Annual Sales Convention Empire Brass Co.

Practical Demonstrations of Lines Installed as in Actual Service Very Instructive to Salesmen—
Social Events Much Appreciated

THE Empire Brass Mfg. Co., Ltd., of London and Toronto, (Manufacturers of "Emco Quality" Brass Goods) held their Third Annual General Sales Convention at their head office in London, in January. The meetings were full of life and spirit and practical demonstrations were given covering a number of lines—installed as in actual service. The technical information imparted is expected to prove of great value to the salesmen in further fitting them for supplying the trade with its proper needs.

By way of recreation the evenings were full of enjoyment. One very pleasant evening was spent at the home of C. H. Ivey, when the salesmen were entertained at bridge whist, followed by a buffet luncheon and refreshments.

The opening address at the convention was given by C. F. Stevens, Vice-President, in the absence (on account of illness) of T. A. Stevens, President and general manager. Addresses on the following subjects were also given during the convention:—

Foundry Practice, A. J. Palmer, Supt.
Steam & Water Valves, Herbert Smith, Asst. Supt.

Metals, C. H. Ivey.

Closet Tanks, Fittings & Automatic Syphons, J. H. Stevens.

Machine Shop Practice, Samuel Thorpe.

Supply Pipes and Traps, W. H. Darling.

Corporation Brass Goods & Tapping Machine Demonstration, A. S. Branston.

Compression and Self Closing Work, Chas. Chapman.

What was said to be the outstanding address at the convention was that given by Herbert Smith, newly appointed assistant superintendent. Mr. Smith is the latest addition to the firm's factory staff. He has made a specialty of valves and their manufacture for the past twenty years, having been connected with several of the largest organizations in that line.

Sir Edmund Walker Suggests Turnover Tax of One Per Cent

Sir Edmund Walker, president of the Canadian Bank of Commerce, in discussing the subject of taxation in his recent address at the annual meeting of the Bank said:—

"In 1919 and in every year since I have referred to the very serious and difficult problem of taxation. In that year I ventured to say that 'the whole question should be approached without that class feeling which often causes taxes to be so apportioned that bitterness and a sense of injustice are felt by many who do not object to being heavily taxed so long as those who really can afford to pay their share do not escape. The income tax should be paid by a much larger number of citizens. In 1920 I urged a turnover tax of one per cent. on sales of commodities, and I stated that such a tax would provide a substratum of tax revenue, in which it is true that all would join alike, paying in precise proportion to their expenditures for commodities, but the manner in which those who have larger incomes would be taxed through the income tax would provide for that difference in treatment which modern taxation recognizes.' Much study has been given, especially in the United States, to such a form of taxation and, while we must avoid double taxation on great staples dealt in by brokers and dealers on the public exchanges, the turnover tax is one of the least complicated and most easily collected of taxes.

The Turnover Tax

"Canada is frequently complimented by students of taxation in the United States and Great Britain on its sales tax, but a much larger revenue, in a form much less hurtful to production, would result from a turnover tax of one per cent. Such a revenue would make it possible to lessen the scale of super-taxes now imposed on incomes and other unfair taxes on enterprises, the ruinous result of which is evident to all who give any thoughtful attention to the matter. A study of conditions in Great Britain to-day should convince the most ardent believer in super-taxes that you cannot have it both ways. You cannot on the one hand by unfair taxation strip those who have saved or made money, and on the other look to the same individuals for aid."

CITY CAN DISTRIBUTE COST OF LAYING PIPES

Montreal.—By an amendment to the city charter, passed at the recent session of the Legislature, the laying of water service pipes to dwelling houses at a distance from water mains will be facilitated, according to information supplied by H. A. Terreault, chief en-



F. R. MAXWELL.

The cut of Thos. Maxwell of Toronto was inadvertently published in place of the above cut of F. R. Maxwell of Toronto, former President of Canadian Society D. S. & H. E., who was re-elected Alderman in Ward 8, Toronto, for 1923, and elected Chairman of the Board of Works for the city.

gineer of the city. There are many instances where houses, constructed in the outlying wards have difficulty in getting water supply on account of the cost of laying the water pipes. An amendment made a few years ago to the city charter authorized the city to proceed with the work provided the interested owners of property are willing to pay 6 per cent. on the amount of the investment. The latest amendment enables the city to distribute the cost on proprietors without getting their previous consent.

Discussing the new amendment, Mr. Terreault showed that it was advantageous for the city to possess the larger powers, and it would obviate delays that now occur. The Legislature, in the first amendment, restricted the expenditure for laying water service pipes to \$250,000 a year which was a guarantee that extravagant expenditure would not be indulged in for the benefit of those householders living at impractical distances from the water mains of the city.

SEWERAGE SCHEME TO COST MILLIONS

Replying to deputations from North Toronto which asked the Toronto civic Works Committee for information regarding sewers, Works Commissioner Harris let drop the information that the proposed new sewerage scheme for North Toronto will cost "many millions of dollars."

A deputation of property owners wanted a sewer constructed on Millwood road, to fit in with the proposed new scheme. They did not wish to wait until the scheme was formulated and

adopted by Council, but to go ahead as soon as possible, so that they could commence building. Commissioner Harris promised to have a report on this for the next meeting.

The next deputation consisted of A. O. Thorne and W. G. Ellis of the North Toronto Ratepayers' Association, who said the people of North Toronto were anxious to know what the Works Commissioner had in mind for them. They thought that publication of the extent of the scheme now would cause an influx of people into North Toronto.

Mr. Harris promised that details of the new sewerage plan for North Toronto would be brought before the committee at the earliest possible date.



Henry: "Say, what's the best way to teach a girl to swim?"

Harold: "That's a cinch. First, put your left arm under her waist, then gently take her left hand—"

Henry: "Oh, say, boy, she's my sister,"

Harold: "Aw. Push her off the dock."

* * *

We imagine a good many persons would be in favor of joining an organization which would have for its objective the extermination of that class (which doesn't include plumbers) who go out for something to eat at 10.30 a. m., combining breakfast and lunch in one. This is not serious in itself. It might be allowed to pass if they did not refer to the thing as "bruncheon"—breakfast and luncheon, you get the idea. We feel this matter so keenly that we are quite ready to whet an axe any time.

* * * *

Roy Simpson, negro laborer, was putting in his first day with a construction gang whose foreman was known for getting the maximum amount of work out of his men. Simpson was helping in the task of moving the right-of-way and all day long he carried heavy timbers and ties until at the close of the day he was completely tired out. Came quitting time. Before he went he approached the boss and said:

"Mister, you sure you got me down on the payroll?"

The foreman looked over the list of names he held. "Yes," he said, finally. "Here you are—Simpson—Roy Simpson. That's right, isn't it?"

"Yaas suh, boss," said the negro, "das right. I thought mebbe you had me down as Sampson."

Market Conditions and Tendencies

Price Trend on Sanitary and Heating Supplies

Markets at a Glance

WITH the exception of closet tanks and seats, practically all the current market developments affecting sanitary and heating materials are in an upward direction. Higher quotations appear on cast and malleable pipe fittings, as well as bushings, unions and plugs. Radiators have also been advanced in price through a revision of four points in the discounts. Higher prices have now materialized on cotton wastes, while upward developments in pig iron again attract attention from the viewpoint of their effect on finished materials. The slightly lower price levels on tanks and seats are in line with the revisions formerly listed on closet combinations. Other plumbing and steam-fitting supplies appearing with higher prices are: zinc sheets, tin plates and wrenches of various kinds. The new discount on radiator

valves is 55 and 25 per cent. Copper and brass sheets have been slightly advanced in some quarters, and a firm tone exists in primary markets. This upward tendency is also evident in other lines, such as tubing sheets and lead products. Wrought piping remains very firm, while it is stated that some slightly higher levels on boiler tubes would not be surprising in the near future. The opinion also prevails that lead pipe and solders may be revised upward. That certain discounts on brass compression goods may also develop is the opinion in certain quarters of the trade. It is noted that the stove foundry men receive a wage increase, this being one of the factors outlined by range and furnace manufacturers when the recent new prices went into effect.

Montreal Markets

MONTREAL, January 30.—A firm tendency in the markets for plumbing and steam-fitting supplies is again evidenced by a number of price revisions in an upward direction. Various lines are quoted at higher figures, including tin plate, bar iron and steel products, cotton wastes, larger sized eavestrough and conductor pipe, brass and copper sheets. A change upwards of minor proportions is also made in zinc sheet quotations. Various lines of scrap materials display a firmer tone, and brass and copper, rubber and wrought iron waste are slightly higher in price. The stronger tendency in galvanized sheets is reflected in some quarters, certain jobbing houses increasing their prices, while this firmer tone is also causing a stiffer feeling in the market for range boilers and corrugated sheets. Revised discounts off new lists are now quoted on radiator valves.

NEW HIGHER PRICES ON TIN PLATE

Montreal.

As outlined two weeks ago, there has been a very firm tone on primary tin-plate markets, and higher prices on the local market would not be surprising. These have now materialized, and following are revised quotations;

TIN PLATE—

20 x 28 x 100 lb. basis	14 00
20 x 28 IC, 112s	14 50
20 x 28 IX, 112s	16 00
20 x 28 IXX, 56s	9 50
20 x 28 IXXX, 56s	11 00

TERNE PLATE—

20 x 28 IC, 112s, 200 lb.	13 25
20 x 28 IC, 112c, 214 lb.	13 75

CANADA PLATE—

Half bright 52s	4 85
Half bright 60s	4 90
Blued 52s	5 10
Blued 60s	5 15
Welsh, polished, 52s	6 50
Welsh, polished, 60s	6 75
Galvanized 52s	7 50
Galvanized 60s	7 75

LARGER SIZED TROUGH AND PIPE QUOTED HIGHER

Montreal.

Through increasing list prices, substantial advances are shown in quotations on 15 inch and 18 inch eavestrough and 5 inch and 6 inch conductor pipe. It is pointed out by manufacturers that these sizes are not sold in large quantities, in fact they are not usually stocked. When an order is received it requires special attention and time, thus the cost of producing is much higher than on ordinary sizes sold. Formerly differentials did not allow this extra expense. Other sizes of both trough and pipe are unchanged, as follows;

EAVESTROUGH—

O. G. round and half round, per 100 ft. 8 in., \$16.90; 10 in., \$18.70; 12 in., \$22.20; 15 in., \$35.50; 18 in., \$45.00.

O. G. Square bead, per 100 ft.: 8 in., \$15.90; 10 in., \$17.70; 12 in., \$21.20; 15 in., \$34.50; 18 in., \$44.00.

Discount 70 per cent.

CONDUCTOR PIPE—Round, Plain and Corrugated, per 100 ft.: 2 in., \$18.40; 3 in., \$22.30; 4 in., \$29.60; 5 in., \$48.00; 6 in., \$58.80.
Discount 70 per cent.

CONDUCTOR ELBOWS—

Plain or corrugated, price per doz.
2 in., \$5.25; 3 in., \$6.00; 4 in., \$10.50; 5 in., \$24.00; 6 in., \$29.00.
Discount 60 per cent.

SLIGHT INCREASE NOTED IN ZINC SHEETS

Montreal.

Following the advance in quotations on other lead and zinc products two weeks ago, a slight increase is now made in zinc sheet prices in broken lots. Although spelter on primary markets has been a little easier, this market is again firmer, in line with other metals. Tin, copper and lead remain in their improved market position, remarkable strength being shown in lead at the present time. Prevailing prices are the following;

LEAD AND ZINC PRODUCTS—

Lead pipe, per 100 lbs., up to 2"	14 00
Do., 2" to 8"	15 00
Do., 8" and over	16 00
Lead waste, per 100 lbs.	15 00
Note—Lead pipe is subject to a discount of 10%.	
Lead traps and bends	15 1/2
Lead wool, lb.	0 14 1/2
Lead sheets, 2 1/2 lbs., sq. ft. lb.	0 12
Lead sheets, 2 1/2 lbs., sq. ft. lb.	0 12
Lead sheets, 3 to 3 1/2 lbs., sq. ft. lb.	0 11 1/4
Do., 4 to 8 lbs., sq. ft. lb.	0 10 1/2
Cut sheets, 1/4c. lb. extra and cut sheets to size, 3/4c. lb. extra.	
Solder, guaranteed, lb.	0 27
Do., strictly, lb.	0 24
Do., commercial, lb.	0 23
Do., wiping, lb.	0 23
Do., wire, lb.	0 38
Zinc, sheets, casks	0 11
Do., broken lots	0 12

GENERAL ADVANCE IN COTTON WASTE QUOTATIONS

Montreal.

As outlined in previous reports in Sanitary Engineer new higher prices have been expected on cotton wastes.

These have now materialized, cream polishing being two cents per pound higher, while other grades of white wastes are increased one cent per lb. Certain lines of colored are also increased one cent per lb. Although the lower grades are unchanged. Wool packings are one cent higher on all grades. Following are present prices;

COTTON WASTES—		Per lb.
Cream polishing		0 21
White, XXX extra		0 18
White, XX grand		0 17
White XLCR		0 16
X Empire		0 14½
X Press		0 13

Colored—		
Fancy		0 15
Lion		0 13½
Standard		0 12
Popular		0 10
Keen		0 08

Wool Packing—		
Arrow		0 25
Axle		0 21
Anvil		0 17
Dominion Wipers—		
White cotton		0 18
Colored cotton		0 13

FAIR VOLUME OF BUSINESS IN SOIL PIPE

Montreal.

Current trade in soil pipe and fittings is again said to be fair, and up to expectations for this time of year. Manufacturers describe the undertone of the market as firm in view of the increased costs of raw material and fuel, and following are prevailing discounts;

SOIL PIPE—		
2 and 3 inch		35%
4 inch		35%
5 and 6 inch		35%
8 inch		net
FITTINGS—		
2 to 6 inch		45%
8 inch		net

FIRMER TONE IN SOME SCRAP METALS

Montreal.

A firming tendency is noted in certain lines of scrap metals, particularly brass and copper, and quotations on these are generally advanced slightly. Wrought iron prices are one dollar per ton higher, although other lines of iron and steel are dull and unchanged. The strength of rubber in primary markets is reflected in waste, and both automobile tires and rubber shoes show a slight advance. Dealers report an improvement during the past few weeks, a fair amount of activity accompanying the firmer market tone. Following are average dealers' buying prices;

SCRAP MATERIALS—		
Automobile tires		0 50
Rubber shoes		0 03
Yellow brass		0 05½ to 0 06
Red brass		0 09
Light brass		0 04½
Scrap zinc		0 04¾
Lead, heavy		0 05
Lead, tea		0 03
Light copper		0 08½ to 0 09
Heavy copper		0 11½
Wrought iron, R. Rd., No. 1, per gr. ton		12 00
Malleable scrap (ton)		9 00 to 10 00
Pipe scrap (ton)		7 90
Heavy melting steel		9 00
No. 2 busheling		3 00
Boiler plate		3 00 to 9 00
No. 1 machinery cast		20 00 to 22 00

NEW DISCOUNTS IN EFFECT ON PIPE FITTINGS

Montreal.

Quotations on cast and malleable pipe fittings have been advanced approxi-

mately five per cent, through a revision in discounts. Following are revised discounts:—

PIPE FITTINGS—

Cast iron fittings	22%
Plugs, cast iron	22%
Do., solid	22%
Do., countersunk	22%
Bushings, cast	25%
Do., malleable	25%
Unions	40%
Flanged unions	22%
Flanged fittings	27½%
Flanged fittings	27%
Dart unions, black,	33 1-8%
Dart unions, galv.	13%
Nipples, ½ to 4", close and short	55%
Do., long	60%
Do., 4½ to 8", close and short	45%
Do., long	50%
Couplings, 4" and under	25%
Do., 4½" and larger	5%

Malleable Fittings—
Piece list effective June 1st, 1922. Discount* 68 per cent.

CHAIN WRENCHES ARE ADVANCED IN PRICE

Montreal.

New higher prices are issued on chain wrenches, showing an increase of approximately 12½ per cent.

VERY FIRM UNDERTONE IN WROUGHT PIPE

Montreal.

While the undertone of the wrought iron and steel pipe market has been firm for some weeks past, this tendency is now even more pronounced according to local manufacturers. This tendency is evidenced by the action on the part of certain American producers in increasing quotations one point. This revision has not been generally announced up to the present, but such a development would not be surprising. Domestic quotations remain under list No. 57.

WROUGHT PIPE

Price List No. 57.	Standard Butt Weld		November, 1922.	
	Steel Blk.	Pipe S/C	Gen. Wrot. Iron	Galv. Blk. Galv.
Size				
1½ in.	6.00	8.00	...	...
2 in.	3.96	6.00	7.20	9.30
2½ in.	3.96	6.00	7.20	9.30
3 in.	5.02	6.55	7.31	8.93
3½ in.	6.10	7.82	8.86	10.70
4 in.	8.67	11.22	12.75	15.47
4½ in.	11.73	15.18	17.25	20.93
5 in.	14.03	18.15	20.63	25.03
5½ in.	18.87	24.42	27.75	33.67
6 in.	29.84	38.61	...	...
6½ in.	39.02	50.49	...	...
7 in.	50.60	64.40	...	...
7½ in.	59.95	76.30	...	...

Standard Lap Weld Pipe S/C

Per 100 feet.	Steel		Gen. Wrot. Iron	
	Blk.	Galv.	Blk.	Galv.
Size				
2 in.	22.20	27.75	31.08	37.00
2½ in.	32.76	41.54	46.80	56.16
3 in.	42.84	54.32	61.20	73.44
3½ in.	51.52	65.32	73.60	88.32
4 in.	61.04	77.39	87.20	104.64
4½ in.	7.12	90.17	1.07	1.27
5 in.	82.88	105.08	1.24	1.48
6 in.	1.08	1.36	1.61	1.92
7 in.	1.40	1.79	2.07	2.50
8 in.	1.48	1.88	2.18	2.63
9 in.	2.07	2.62	2.97	3.59
10 in.	1.92	2.43	2.82	3.39
10 in.	2.47	3.13	3.63	4.37

INCREASED PRICES ON BAR PRODUCTS

Montreal.

The firmer tendency in the market for bar products, as outlined in recent issues of Sanitary Engineer, has resulted in higher prices on practically all lines. Common bar iron is advanced twenty cents per 100 lbs., bringing the local quotation to \$3.35 base. Other

bars of both iron and steel show a corresponding increase with the exception of spring steel and prices on this product are purely nominal and according to grade. In announcing the higher quotation producers state that the advanced costs of production are merely taken into consideration, and there is still a firm undertone in the market. Primary markets have shown a gradual increasing tendency and for some weeks past mills have been announcing advanced levels on semi-finished products. Following are revised quotations;

BAR IRON—

Common bar iron, 100 lbs.	3 35
Refined iron	4 85
Irish finish machinery steel	3 40
Mild steel	3 35
Single reeled machinery steel	5 25
Band steel	3 85
Spring steel	5 00 to 8 50
Sleighshoe steel	3 35
Tire steel	3 55
Harrow tooth steel	3 50
Toe caulk steel	4 25
Mining tool steel, per lb.	0 19
Black Diamond tool and cast steel per lb.	0 19

NOTE—Refined iron is approximately \$1.60 per 100 lbs. over base, but fluctuates owing to unsettled market.

Band steel in scroll bundles, 50c per 100 lbs. extra.

GENERAL PRICE INCREASE ON WRENCHES

Montreal.

An increase of about five per cent. is quoted on wrenches, including agricultural, knife handled, bull dog and alligator.

ADVANCED GALVANIZED SHEET PRICES IN SOME QUARTERS

Montreal.

Following the announcement made by importers of English galvanized sheets a week or so ago that quotations were advanced on English sheets, and owing to the firm tendency in other markets on these products, certain local distributors are putting into effect slightly higher quotations. This revision, while not generally quoted as yet, indicates the strong tone which remains in the market. Galvanized Canada plates in smaller boxes are also twenty-five cents per box higher. No change is made in other lines, and following are prevailing prices;

BLACK SHEETS—

10 gauge, base	4 25
12 gauge	4 35
14 gauge	4 45
16 gauge	4 55
18—20 gauge	4 80
22—24 gauge	4 85
26 gauge	4 90
28 gauge	5 10

GALVANIZED SHEETS—

Queen's Head Fleur de Lis		
28 gauge	7 25	7 00
26 gauge	7 00	6 75
24 gauge	6 70	6 45
22 gauge	6 65	6 40
18—20 gauge	6 40	6 15

Other Brands—

10½ oz.	7 00	—
28 U. S. base	6 50	—
26 U. S. base	6 25	—
24—22 gauge	6 10	—
20—18 gauge	5 90	—
16 gauge	5 75	—

Above prices are for ½ ton lots in English iron and 1000 lb. lots in American iron with an extra charge of 25c for less quantities. Extra for sheets 3 ft. wide, 28 gauge and 10½ oz., 25c. per 100 lbs. Further extra for sheets 4 ft. wide according to gauge.

MAY BE HIGHER PRICES ON
CORRUGATED SHEETS

Montreal.

A much firmer tone has now developed in the market for corrugated sheets and one local manufacturer stated that advanced quotations may be reached at an early date. It was previously thought the stronger tendency in flat sheets would not reflect on corrugated for some little time owing to the present quiet season, but stocks are gradually becoming depleted and manufacturers will soon be forced into the higher market values. Following are present list and discount:

CORRUGATED SHEETS—	Per 100 Sq. Ft.
No. 28 gauge	6 50
No. 26 gauge	7 00
No. 26. U. S. gauge	8 00
No. 24 gauge	9 00
No. 22 gauge	11 00
No. 20 gauge	12 50
No. 18 gauge	16 50
Less 10 per cent.	
Lighter than 24 gauge and wider than 27 inches, 75c. per square extra.	

RADIATOR VALVES HAVE NEW
DISCOUNTS

Montreal.

As stated in last issue, new list prices were quoted on radiator valves but up to that time local distributors had not adopted the new discounts. These are now given as 55 and 25 per cent. off new list on both standard and removable disc. Other lines of valves and bibbs are unchanged at the following discounts:

VALVES—	
Compression work, standard	45%
Fuller work, standard	30%
Quick opening compression bibbs	43%
Bath cocks, quick opening	41%
Bath cocks, compression	41%
Basin cocks, quick opening	46%
Flatway stop and waste cocks, standard	56%
Roundway stop and waste cocks, standard	56%
Brass steam cocks, standard, 1/4 in.	50%
Radiator valves, standard	55/25%
Do., removable discs	55/25%
Globe, angle and check valves, standard	25%
Gate or straightway	25%
Emco globe valves	33%
Emco check valves	33%
Jenkins globe, angle, check and swing	
check	10%
Jenkins gate or straightway	16%
Jenkins iron body, globe and angle	15%
Jenkins iron body, gate	25%
N. P. "O" and "S" traps	40%

BRASS AND COPPER SHEETS ONE
CENT HIGHER

Montreal.

Slightly higher quotations are given on brass and tinned copper sheets, both lines being increased one cent per pound. Other lines such as rods and tubing are unchanged. The improved tone of copper on primary markets has reflected a firmer undertone in these products, this metal making further slight advances during more recent weeks. Following are revised quotations:

BRASS—	Base.
Sheet, base	0 25
Rods, base 1/2 to 1 in., round	0 22
Tubing, seamless, base	0 30
F.o.b.	
COPPER—	
Rods, 1/2 to 2 in.	0 29
Soft sheets, plain, 16 oz. and heavier	0 30
Plain tinned, 16 oz. and heavier	0 38
Polished, and tinned, 16 oz. and	
heavier, lb.	0 41
Tubing, lb.	0 32
Above prices are full sheets and bars. Cut sheets and bars are 5c. per lb. higher.	

MAY BE HIGHER QUOTATIONS ON
RANGE BOILERS

Montreal.

A very firm tendency is noted in the market for range boilers, in line with other galvanized products. The strong tone in flat sheets has been in evidence for some weeks past, and the difficulty in securing ample supplies of heavier gauges for the manufacturing boilers is becoming more apparent from week to week. One local manufacturer stated that he would not be surprised if prices were forced upwards in the near future. Following are present discounts from standard list:

RANGE BOILERS:—	
5 Gallon	\$13.50
12 "	14.00
18 "	15.00
25 "	16.50
30 "	17.50
35 "	20.50
40 "	22.75
52 "	38.00
66 "	60.75
82 "	74.00
100 "	103.00
120 "	117.00
144 "	164.00
168 "	187.00
192 "	210.00
Std., less 40 per cent.; Ex. Heavy, 30 per cent.	

KEEN COMPETITION IN CLOSET
COMBINATIONS

Montreal.

Although current nominal quotations on closet outfits are still unchanged locally, an easier tendency continues in the market. When discussing the lower prices appearing on other domestic markets one local distributor stated that in all probability a similar development would be noted here also in the not far distant future. Competition is very keen on what little business is showing, with rumours of further price-shading, while at the same time dealers contend that existing levels allow very little profit. It is also reported that an easier feeling now exists among manufacturers and importers, with a possibility of reduced figures at sources of supply. Average price levels are:

CLOSET COMBINATIONS—

Low down outfits, each	
Closet, standard outfit, oak	25 00
Do., post hinge seat	26 00
Do., oak vitro or Pussyfoot	26 00
Do., post hinge seat	26 20
Do., mahogany vitro or Pussyfoot, post	
hinge seat and cover	28 45
Do., vitreous china, oak post hinge seat	
and cover	28 45
Do., vitreous china, mahogany post	
hinge seat and cover	29 50
Do., white Vitro mahogany post hinge seat	
and cover	29 50
Mahogany post hinge seat and cover	28 70
Do., enamelled iron tank, oak post	
hinge seat and cover	29 50
Do., enamelled iron tank, oak post hinge	
seat and cover	29 50
post hinge seat and cover	29 50
Add for 3/8 in. valve on supply pipe	1 25
Add for spud	0 60
Add for reverse trap bowl	1 50
Add for syphon jet bowl	7 00
Deduct for supply pipe	0 80
Deduct for floor hinge	0 60

CLOSET BOWLS—

Richelieu bowl	8 50
Washdown bowl with spud	10 60
Reverse trap bowl with spud	11 35
Syphon jet bowl with spud	16 25

CLOSET SEATS—

Oak post hinge seat and cover	3 85
Oak wood strip seat and cover	3 50
Mahogany finish post hinge seat and	
cover	4 05

CLOSET TANKS—

Low down, oak vitro with fittings, less	12 25
seat	
White vitro or Pussyfoot with fittings,	
flush elbow and supply	15 65
Vitreous china tank with fittings, flush	
elbow and supply	19 00
Enamelled iron with fittings, flush	
elbow and supply	16 50

UNSETTLEMENT AGAIN NOTED IN
ENAMELLED WARE

Montreal.

There are again indications of unsettlement on the local market for enamelled ware, after a period of improvement in this connection. Local supply houses state that although trade is only of moderate proportions a good percentage of this is only obtainable at a sacrifice in prices, especially larger sized orders. It is reported however that some arrangement will probably be made in the near future in the hope of again producing a more stable market. Average quotations are unchanged as follows:

ENAMELLED WARE—

Sinks, roll rim—	
18 x 30	\$23 00
Sinks, flat rim—	
16 x 24	1 only 2 only 3 only
18 x 30	\$ 7 50 \$ 7 40 \$ 7 30
20 x 30	8 70 8 60 8 50
20 x 30	9 90 9 80 9 70
Bath tubs, roll rim, 4, 4 1/2, 5 feet, 24 to	
30 in. wide	51 40
Bath tubs, 5 1/2 feet	57 10
Lavatories—	
17x19 in. Apron F139 or P4045	15 30
18x24 in. Apron F154 or P3845 or P3847	23 60
18x21 in. Apron F169 or P4205	17 60
17x19 in. Roll rim. F241 or P4345	12 60
Less 33 1-3 per cent.	

STRENGTH STILL SHOWN IN LEAD
MARKETS

Montreal.

Ingot metal markets continue to show a firmer tone, notably lead which registers a further sharp advance. The decline in zinc seems to have ceased, and a re-action upwards may follow. Generally speaking the outlook may be said to be firm.

TIN.—London has advanced again this week and Straits are selling at over 40 cents in New York for the first time in many months. It is considered that this metal has acted well in view of disturbed conditions, but a reaction is of course probable. The local market is strong at 44 1/2 cents.

COPPER.—The slight recession in prices noted a week or so ago has disappeared, and the market is again firmer. Export business is more or less unsettled, but sentiment remains bullish and producers are in some cases declining to quote for forward deliveries. Should there be any sign of a settlement of the trouble in Germany prices would in all probability respond rapidly. Prices are firm at 18 cts. for electro, 17 1/2 cts. for casting.

LEAD.—Lead is showing remarkable strength with East St. Louis quoted at over 8 cts., while the London market has also advanced sharply. Consumption is very heavy in the U. S. A. and supplies are comparatively scarce over the next few months. Local market is firm at 8 1/2 cts.

SPELTER.—The American market has been sagging during the past few weeks, with a light demand and a cessation of export business. A firmer tone has now developed and it is thought likely that prices will again advance, especially as domestic buying has been

light recently. Market locally is steady at 9½ cts.

ANTIMONY.—The Chinese situation remains very firm and offerings from there are limited. Demand is only fair, but prices locally have stiffened somewhat and stocks are light. English is quoted at 8 cts., Chinese at 7½ cts.

Toronto Markets

TORONTO, January 30.—The majority of current price revisions in sanitary and heating materials are again in an upward direction. The only reduction affects closet seats and tanks, this change falling into line with the recent downward revision on closet combinations. Price increases affect radiation pipe fittings and pig iron. Both cast and malleable fittings are quoted higher through the issuing of new discounts, while bushings, unions and plugs are also affected. Radiators are revised all through the list, but boilers maintain former levels. Higher prices have also materialized on cotton wastes. The new discount on radiator valves and union elbows is 55 and 25 per cent. An upward tendency is still evident on many products, including sheets, brass and copper and tubing.

ADVANCED PRICES MATERIALIZE ON COTTON WASTES

Toronto.

As previously foreshadowed in Sanitary Engineer, some higher prices have now developed on cotton wastes. The extent of this further increase is approximately one cent per pound on the various grades of both white and colored. Cream polishing, however, is advanced two cents. This revision is attributed to the strength of raw materials, chiefly accentuated by the climb of cotton in general. Following are new quotations:

COTTON WASTES—	
Cream, polishing	0 21
White, XXX	0 21
Do., XX	0 18
Do., X	0 17
Do., XC	0 15½
Do., XXX extra	0 18
Do., XX grand	0 17
Do., LCR	0 16
Do., X empire	0 14½
Do., X press	0 13
Colored, No. 1	0 14½
Do., No. 17	0 13½
Do., No. 1A	0 12½
Do., No. 1B	0 11½
Do., Fancy	0 15
Do., Lion	0 13½
Do., Standard	0 12
Do., Popular	0 10
Do., Keen	0 08

Above lines subject to trade discount for quantity.

UPWARD REVISION IN RADIATOR PRICE LEVELS

Toronto.

Quotations on radiation are now placed on a higher basis through a revision in discounts. The extent of the change is four points, that is, the discounts on standard radiators which was formerly 55 per cent. for water and 56 for steam are now 51 for water and 52 for steam. Changes of similar extent are made all through the list, with the exception of boilers, where no revision is recorded. The strength of the market has been pointed out in former market reports. Following are the revised quotations which apply in Ontario, f. o. b., factory,

with the exception of the following points which take discounts one point lower than those given herewith:—London, Windsor, Sarnia, Amherstburg, Walkerville, Sandwich, Ford City, Ottawa and Hull, Que.

RADIATORS—

Revised radiator list prices are for 1, 2, 3, 4 and 5-column radiators per square foot.

38 in., \$1; 32 in., \$1.10; 30 in., \$1.15; 26 in., \$1.20; 23 in., \$1.26; 22 in., \$1.30; 20 in., \$1.36; 18 in., \$1.40; 16 in., \$1.50; 14 in., \$1.55; 13 in., \$1.60.

Discount on 2, 3, 4 and 5 column standard sizes, 51 per cent. for water and 52 per cent. for steam.

Discount on 1-column standard size, and 2, 3, and 4-column hospital sizes 43 per cent. for water and 44 per cent. for steam.

Discounts on 1-column hospital size, water 29 per cent; steam, 30 per cent.

Wall radiators—5 ft., \$1.15; 6 ft., \$1.10; 7 ft., \$1.05; 9 ft., \$1.05; 12 ft., \$1.05. Discount 43 per cent.

BOILERS—

Water:

Round, 60 per cent. off list. Square, 20 per cent. off list.

Steam:

Round, 25 per cent. off list; Square, 15 per cent. off list.

DISCOUNT OF 55 AND 25 ON RADIATOR VALVES

Toronto.

Following the issuing of the new price list on radiator valves and union elbows, which was reproduced in a former issue of Sanitary Engineer, uniform discounts applying to this list have now been generally adopted by local distributors. The new level is 55 and 25 per cent. In the last issue it was pointed out that a variety of discounts were being quoted, some around 60 per cent. off, others 50 and 10, and again 50 and 10 and 10.

REVISED QUOTATIONS ON CLOSET TANKS AND SEATS

Toronto.

Closet tanks and closet seats are now changed in price, these revisions corresponding to the new lower prices recently announced on closet combinations. The extent of the changes, however, are

moderate, the quotations now in effect being as follows:—

CLOSET COMBINATIONS—		Each
Oak, Wood Tank, Oak W. S. Seat and Cover	24	00
Oak Vitro Tank, Oak W.S. Seat and Cover	24	96
Oak Pussyfoot Tank, Oak W.S. Seat and Cover	24	09
Oak Wood Tank Oak P.H., Seat and Cover	24	50
Oak Vitro Tank, Oak P.H. Seat and Cover	24	50
White Vitro Oak Woodstrip Seat and Cover	24	50
White, Pussyfoot Oak Woodstrip, Seat and Cover	25	50
White Pussyfoot, Woodstrip Seat and Cover	25	50
White Vitro Tank, Mahog., P.H. Seat and Cover	26	50
White Pussyfoot, Mahog., P.H. Seat and Cover	26	50
White Vitro or Pussyfoot, oak, P.H. Seat and Cover	26	00
Mahog. Pussyfoot, Mahogany P.H., Seat and Cover	27	00
Vitreous China Tank, Oak P.H., Seat and Cover	27	00
Enam. Iron Tank, Oak P.H. Seat and Cover	28	75
Vitreous China Tank, Mahog., P.H. Seat and Cover	29	00
Enam. Iron Tank, Mahog., P.H., Seat and Cover	28	75
ADDITIONS OR REDUCTIONS ON ABOVE—		
If supplied less bend or offset, deduct.	0	50
If supplied with reverse trap bowl, add	1	50
If supplied with BOT Reverse Trap bowl		
Add.	2	25
If supplied with plain syphon jet bowl		
Add.	7	00
If supplied with N.P. stock cock on supply Pipe, Add	1	50
If supplied less brass and rubber floor flange and bolts, Deduct	0	60
If supplied less bend or offset, deduct.	0	50
If supplied less N. P. supply pipe deduct	0	70
CLOSET BOWLS—		
Washdown bowl with spud	10	60
Reverse trap bowl, with spud	12	10
Syphon jet bowl, with spud	17	00
"Richelieu" bowl	10	50
CLOSET TANKS—LOW DOWN—		
Oak wood, Tank and inside fittings with bend and supply	13	20
Mahog. Wood Tank, and inside Fittings with bend and supply	15	40
Oak Vitro or Pussyfoot Tank and inside Fittings with bend and supply	13	45
White Vitro or Pussyfoot Tank and Inside Fittings with bend and supply	13	40
White Enam. Tank F-585 or P.9262, or White Vitreous China Belmeade Tank with fittings (as above)	18	00
CLOSET SEATS—		
Oak Rich. Seat and Cover to wall	3	50
Oak Woodstrip Seat and Cover with bolts	3	50
Oak Woodstrip Seat less Cover with bolts	2	90
Oak Post Hinge Seat and Cover	3	85
Mahog. Fin. Post Hinge Seat and Cover	4	75

STOVE FOUNDRYMEN GET WAGE INCREASE

Toronto.

Among the reasons advanced by stove and furnace manufacturers for the recent advance in prices on these products was the fact that wage levels in the manufacturing end of the industry had advanced. This was stated to be in addition to the higher trend of raw material prices. At a conference of Ontario stove foundrymen, members of the International Molders' Union were granted a wage increase of approximately 16 per cent. Men who formerly received \$5.40 per day of 8 hours will now receive \$6.

QUOTATIONS ON PIPE FITTINGS REVISED UPWARDS

Toronto.

As outlined in former issues of Sanitary Engineer, revised quotations have now appeared on the market for pipe fittings. Revisions have been made all along the list, thus placing quotations upon a higher level. The advance varies to some extent, but is chiefly in the neighbourhood of seven per cent. Both cast iron and malleable fittings are

changed, as well as bushings, unions and plugs. Following are the revised quotations:—

PIPE FITTINGS—	Per Cent.
Cast iron fittings standard.....	22
Do., extra heavy	25
Plugs, cast iron	22
Do., solid	22
Do., countersunk	22
Bushings, malleable	25
Do., cast	25
Unions, 1/4 in. to 2 in.	49
Do., 1/8 in., 2 1/4 to 4 in.	40
Flanged unions, std.	22
Flanged Fittings	27 1/2
Dart unions, blk., 1/4 to 2 in.	34
Do., 1/8 in., 2 1/4 to 4 in.	23
Do., galvd., add to black	30
Nipples, blk., and galvd. 1/8 to 4 in.	55
close and short	45
Do., 4 1/2 in. and larger	60
Do., long, 1/8 in. to 4 in.	50
Do., 4 1/2 in. and larger	35
Do., running thread	25
Couplings, 4 in. and under	5
Do., 4 1/2 in. and larger	

MALLEABLE FITTINGS—

New piece list, effective June 1, 1922.
1 in. elbow, \$0.32, \$0.53; 2 in. elbow, \$1.05, \$1.70; 1 in. tee \$0.43, \$0.70; 2 in. tee, \$1.45, \$2.40; 1 in. coupling, \$0.33, \$0.53; 1 in. locknut \$0.15, \$0.23. Discounts—Less 68 per cent.

MAY BE REVISION IN VALVE DISCOUNTS

Toronto.

A revision towards higher price levels on certain lines of brass compression work is considered possible in the near future, according to current opinion on local markets. It is noted that quotations on iron body and brass valves are being revised upward in the United States, and a covering of future requirements by local distributors is taken as an indication that a similar movement may possibly develop on domestic centres. Up to the present no changes have been made from the following discounts:

VALVES—	Per cent
Compression work, standard	45
Fuller work, standard	30
Bath cocks, compression	41
Do., Fuller	25
Flatway stop and wastecoaks, stand'd.	58
Brass steam cocks, standard 1/2" to 2"	50
Do., 2 1/2" to 3"	43
Globe, angle and check valves, std.	25
Mueller globe, angle and check	25
Mueller composition disc steam valves ..	33
J.M.T. valves, screwed	10/10
J.M.T. gate valves, screwed	16/10
Jenkins gate or straightway, screwed.....	16/10
Jenkins, globe, screwed	10/10
Radiator valves, standard	55-25%
Do., removable disc	55-25%
Emco, J. D., rad. valves, screwed	33
Emco swing check, 3/8" and 1/2"	40
Do., other sizes	33
Webber gate valves, screwed	33
Emco globe valves, std.	25
Emco globe valves, J.D., screwed	33
Basin Cocks—	
No. 0 and 1 Fuller pattern	30
Quick opening No. 3633	50
No. 3623, plain or index handle	34

PIG IRON PRICES AGAIN RECORD ADVANCE

Toronto.

Pig iron prices have taken another upward step, the extent of this current increase being one dollar per ton. This revision brings the prevailing local level to \$33.55. This is the third advance during the last few weeks. The movement is attributed in some quarters to increased buying in primary centres. On the other hand, the fact that pig iron is not offered for sale so freely as formerly has added a certain element of strength

to the market. There has been some consideration of pig iron being stored against a possible coal strike in April next, but the possibility of such labor disturbances has now subsided, and the necessity for hoarding supplies has therefore diminished.

BOILER TUBES MAY REACH SLIGHTLY HIGHER LEVELS

Toronto.

The upward tendency which has prevailed in the boiler tube market during recent weeks is considered likely to result in slightly higher price levels being announced in the near future. This revision is stated by local distributors to be in line with current advances taking place in the primary markets. It is stated that new domestic quotations are under consideration in some quarters. On the other hand, the degree of improvement in this direction is described as hampered to some extent through the liquidation of stocks. As soon as these are disposed of, higher replacement values are expected to become effective.

BOILER TUBES—

Size	Seamless.	Lapweld
3/4 inch	\$19 00	\$.....
1 inch	20 00	.....
1 1/4 inch	22 00	.....
1 1/2 inch	24 00	.....
1 3/4 inch	24 00	23 00
2 inch	22 00	19 00
2 1/4 inch	24 00	21 50
2 1/2 inch	27 00	23 50
3 inch	34 00	28 50
3 1/4 inch	36 00	33 00
3 1/2 inch	38 00	33 00
4 inch	50 00	42 00

WROUGHT PIPING CONTINUES ON FIRM BASIS

Toronto.

While list No. 57 continues to govern the domestic wrought iron pipe markets, yet quotations remain on a very firm basis. It is pointed out that genuine wrought iron in the United States has shown an appreciable advance in price, but steel has not increased to the same extent, although basic conditions are described as very strong. This tendency is also reflected in domestic circles.

WROUGHT PIPE

Price List No. 57.		November, 1922.	
Standard Butt-weld Pipe S/C		Per 100 ft.	
Size	Steel	Gen. Wrot. Iron	
	Blk.	Galv. Blk. Galv.	
1/8 in.	6.00	8.00	.....
1/4 in.	3.96	6.00	7.20 9.30
3/8 in.	3.96	6.00	7.20 9.30
1/2 in.	5.02	6.55	7.31 8.93
3/4 in.	6.10	7.82	8.86 10.70
1 in.	8.67	11.22	12.75 15.47
1 1/4 in.	11.73	15.18	17.25 20.93
1 1/2 in.	14.03	18.15	20.63 25.03
2 in.	18.87	24.42	27.75 33.67
2 1/2 in.	29.84	38.61	.....
3 in.	39.02	50.49	.....
3 1/2 in.	50.60	64.40	.....
4 in.	69.95	76.30	.....

Standard Lapweld Pipe S/C

Per 100 feet.			
Size	Steel	Galv. Blk.	Galv. Iron
2 in.	22.20	27.75	31.08 37.00
2 1/2 in.	32.76	41.54	46.80 56.16
3 in.	42.84	54.32	61.20 73.44
3 1/2 in.	51.52	65.32	73.60 88.32
4 in.	61.04	77.39	87.20 104.64
4 1/2 in.	71.12	90.17	1.07 1.27
5 in.	82.88	105.08	1.24 1.48
6 in.	1.08	1.36	1.61 1.92
7 in.	1.40	1.79	2.07 2.50
8 in.	1.48	1.88	2.18 2.63
8L in.	1.70	2.16	2.51 3.02
9 in.	2.07	2.62	2.97 3.59
10L in.	1.92	2.43	2.82 3.39
10 in.	2.47	3.13	3.63 4.37

EARLY BUILDING BRINGS CALL FOR ENAMELED WARE

Toronto.

Although some price revisions have appeared on closet tanks and seats, no variations are made in prices on enameled ware products. These are being maintained at the levels quoted below, with the general situation described as fair for this season of the year. Whether revised quotations will develop in the near future is considered problematic in some quarters, it being pointed out that while another brisk season is being anticipated in building circles, some rumors of price shading have been apparent in certain districts.

ENAMELED WARE—

Enameled Iron Baths, 3" roll rim, 4 ft., 4 ft. 6 in., 5 ft.	51 40
Do., 5 1/2 ft.	57 10
Lavatories—	
17x10" Apron F139 or P4045	15 30
18x24" Apron F154 or P3845 or P3847	23 60
18x21" Apron F169 or P4205	17 60
18x21" Roll Rim, F197, F199 or P4655-6	15 40
17x19" Roll Rim, F241 or P4345	12 60
Sinks, Roll Rim, 16x24 in.	18 10
Do., 18 x 30 in.	23 00
Do., 20 x 30 in.	24 70
Sinks, Flat Rim—	3 only 2 only 1 only
16x24	\$7 60 \$7 70 \$7 80
18x30	8 50 8 60 8 70
20x30	9 70 9 80 9 90
Above prices, list, less 33 1-3 per cent.	

FIRM UNDERTONE NOTED IN RANGE BOILERS

Toronto.

The strength of galvanized sheets and the upward tendency of the market has been reflected to some extent in the finished products, including range boilers. These are described as being on a very firm basis, with the recently revised quotations being firmly maintained. Current trade is described as good for this time of the year. Lists and discounts remain as follows:

RANGE BOILERS—

Size.	List Price
5-gallon	\$13 50
12 to 15 gallon	14 00
18-gallon	15 00
25-gallon	16 50
30-gallon	17 50
35-gallon	20 50
40-gallon	22 75
52-gallon	38 00
66-gallon	60 75
82-gallon	74 00
100-gallon	103 00
120-gallon	117 00
144-gallon	164 00
168-gallon	187 00
192-gallon	210 00
Discounts, Standard weight, 40 per cent.	
Extra heavy, 30 per cent.	

EARLY TRADE FOR SOIL PIPE AND FITTINGS

Toronto.

Early anticipations for trade in soil pipe and fittings are now apparent, this being one of the results of more or less extensive building programs for the coming season. The demand is described as generally good for this time of the year and quotations remain unchanged at the following levels:

SOIL PIPE—

2 inch	Less 33 1-3%
3 inch	Less 33 1-3%
4 inch	Less 33 1-3%
5 and 6 inch	Less 33 1-3%
8 inch	net

FITTINGS—

2 to 6 inch	Less 45 per cent.
8 inch fittings	net.

FAIR TRADE IN LEAD AND ZINC PRODUCTS

Toronto.

Lead and zinc goods present a fairly steady market tone, there having been no change in current local quotations on these lines. Business at present is described as good for the early weeks of the year, and this has enabled the market to hold its own through the customary quiet trade session. Lead in primary metal centres is again strengthening and some slight price advances have been recorded on pig lead. This revision, however, is not considered of sufficient extent to affect the finished products as yet. Unchanged quotations on solders, etc., follow:

LEAD AND ZINC GOODS—

Lead pipe, list, per lb.	0 14
Lead waste pipe, list, per lb.	0 15
Do., over 8 in., list, per lb.	0 16
Lead pipe is subject to a discount of ten per cent.	
Lead traps and bends, less 15 per cent.	
Lead sheets, 4 to 6 lbs., sq. ft. in rolls, lb. \$0.09½—0.10.	
Cut sheets, ½c to ¾c lb. extra and cut sheets to size, 1c lb. extra.	
Solder wire, per lb.	0 31
Do., commercial, lb.	0 25
Do., strictly, lb.	0 23½
Do., guaranteed, lb.	0 26½
Do., wiping, lb.	0 23½
Zinc sheets, per lb.	0 11 0 12

ANTICIPATE BUSY SEASON IN EAVESTROUGH

Toronto.

Quotations on eavestrough and conductor piping remain at the recently revised levels quoted in former lists. A firm tone prevails in these products, the market being described as unusually strong and active for this season of the year. Distributors are anticipating another active period, as prospects for early construction work are considered very bright. Following are prevailing local quotations:

TROUGH (EAVE)—

O. G. Square Bead—	
Per 100 ft.	Per 100 ft.
8 inch . . . \$15 90	15 inch . . . 34 50
10 inch . . . 17 70	18 inch . . . 44 00
12 inch . . . 21 20	

O. G. Round and Half Round

8 inch . . . 16 90	15 inch . . . 35 50
10 inch . . . 18 70	18 inch . . . 45 00
12 inch . . . 22 20	

PIPE (CONDUCTOR)—

Plain, round or corrugated.	
Per 100 ft. in 10 ft. lengths.	
2 in., in 10 ft. lengths, list . . .	18 40
3 in., in 10 ft. lengths, list . . .	22 30
4 in., in 10 ft. lengths, list . . .	29 60
5 in., in 10 ft. lengths, list . . .	48 00
6 in., in 10 ft. lengths . . .	58 80
Less 70 per cent.	

ELBOWS (CONDUCTOR)—

2 inch, list . . .	5 25
3 inch, list . . .	6 00
4 inch, list . . .	10 50
5 inch, list . . .	24 00
6 inch, list . . .	29 00
Less 60 per cent.	

MAY ELIMINATE RANGE IN BAR IRON PRICES

Toronto.

Effective from February 1, certain local distributors state they are revising bar iron price levels upward to the extent of fifteen cents per cwt., through eliminating the lower figure of \$3.25. This change would place the average quotation at \$3.40 base. Shapes and angle iron may also be changed accord-

ingly. This movement is not uniform, however, but has been foreshadowed in former issues and would come as no surprise owing to the recent strength displayed in primary markets, which has been more or less reflected in domestic steel circles. While easier levels are still recorded on eastern centres, it is pointed out that such quotations do not represent current replacement values, and a similar movement here is also expected in the near future. The general conclusion that there will be no coal strike on April 1 has not resulted in any weakening in the general position. The steel market is gaining strength, as regards prices ruling, and it stated that whatever influence the improved coal outlook may have had, it has been overcome by the stronger position of mills.

IRON AND STEEL—

Mild steel bars, base . . .	3 25	3 40
Mild steel bands, 3-16 base . . .	3 75	3 90
Bar iron, base . . .	3 25	3 40
Angle iron base . . .	3 35	3 50
Horseshoe iron . . .	3 90	
Tire steel . . .	3 50	
Spring steel . . .	7 00	8 00
Sleigh shoe steel . . .		3 40
Cold drawn steel . . .		4 50
Tee caulk iron . . .		4 10
Hoop Steel . . .		4 75
Norway iron . . .		12 50
Crucible cast sheet steel . . .		28 00
Mining Drill steel . . .		18 50
Cast tool steel, high grade . . .		30 00
Cast tool steel, medium . . .		18 00

FIRMING TENDENCY IN SHEET MARKETS

Toronto.

Former predictions regarding the firming tendency in the sheet markets are now being borne out by recent developments in primary centres, where prices heretofore quoted by the Steel Corporation are now withdrawn, it being generally expected that an advance is imminent. Current business is described as exceptionally brisk for this season of the year, and forward bookings indicate to some extent the confidence in the market. Unchanged local quotations follow:

GALVANIZED SHEETS—

Premier and Apollo	
10½ oz.	6 65
U. S. 28 base	6 25
U. S. 26 base	5 95
22 and 24	5 80
18 and 20	5 65
16	5 50
12 and 14	5 35
Queen's Head	
28 gauge base	7 15
26	6 75
24	6 45
22	6 30
Fleur de Lis	
28 gauge, base	6 90
26	6 50
24	6 20
22	6 05

An extra 40c. per 100 lbs. is charged for Keystone and Premier bands copper-bearing sheets. An extra is now charged on galvanized sheets, 10½ oz. and 28 ga., when shipped out in sheets 3 feet wide. The extra charged over prices shown in 20c. per 100 pounds.

BLUE ANNEALED SHEETS—

10 gauge, base	4 20
12 gauge	4 25
14 gauge	4 30
16 gauge	4 35

BLACK SHEETS—

18-20 gauge	4 90
22-24 gauge	4 95
26 gauge	5 00
28 gauge	5 10

A charge of 25c. per 100 lbs. is made for less than case lots. An extra 10c. per 100 lbs. is also charged on sheets 26 in. wide.

FAIR VOLUME IN BRASS AND COPPER

Toronto.

The basic metals entering into the production of brass and copper goods, such as rods, tubing and sheets, are apparently attempting to climb up again. While this movement has been of a minor extent up to the present, it is described as the forerunner to general improvement in these products. Current business is also very good, that is for this time of the year. Quotations on these lines remain unchanged, as follows:

BRASS—

Sheets, base, per lb.	0 26
Rods, base, per lb.	0 23
Tubing, base, per lb.	0 31

COPPER—

Rods, base, per lb.	0 29
Soft sheets, plain, 16 oz. and heavier, lb. 0 30	
Do., plain tinned, 16 oz. and heavier, per lb.	0 43
Do., polishing, 16 oz. and heavier, lb. 0 36	
Tubing	0 34
Copper, bus bars, base	0 29

SCRAP RUBBER PRICES ALSO CLIMB UPWARD

Toronto.

In the waste material markets, scrap rubbers have maintained their steady tone, with prices on an upward trend, due to further advances in crude rubber.

Scrap metals have just about been holding their own. Most demand is still for red and yellow grades. The white metals are moving in a fair way.

Consuming demand is still hand-to-mouth in scrap iron, but steadily expanding. Higher prices are asked.

The following are the usual average of dealers' buying prices for large quantities:

SCRAP MATERIALS—

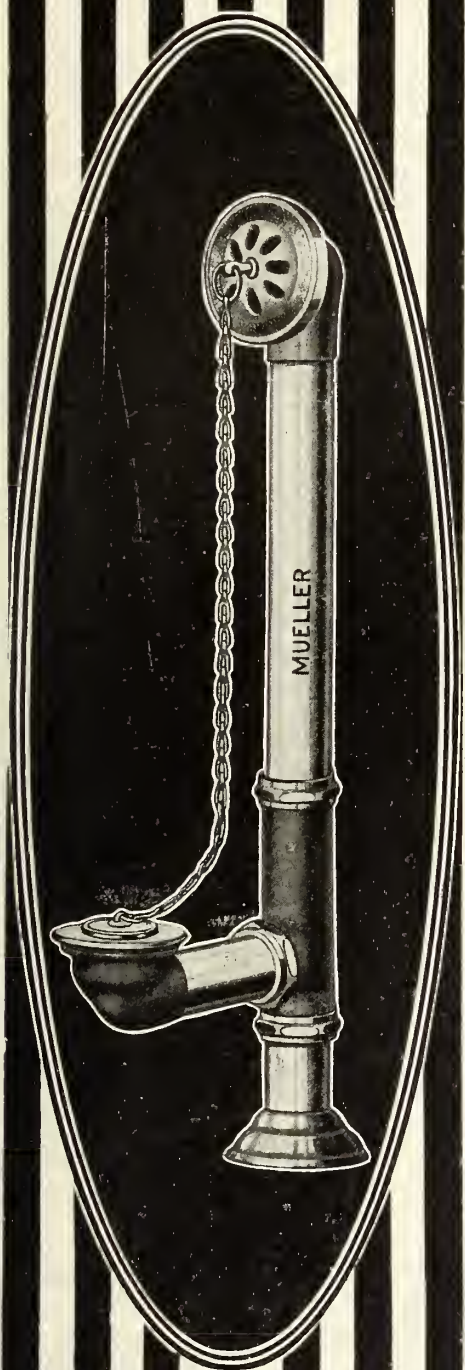
Scrap Iron	
Heavy melting steel	11 00
Scrap pipe	6 00
Steel turnings	10 00
Malleable scrap	10 50
Rails scrap	11 00
Net tons—	
No. 1 cast	18 00
Stove plate	14 50
Car wheels (std)	14 00
Scrap Metals	
Heavy copper wire	11 25
Light copper	9 25
No. 1 composition	9 00
Red brass turnings	7 00
Light brass	4 00
Heavy yellow brass	5 30
Heavy lead	4 50
Tea lead	3 00
Scrap zinc	4 00
Scrap Rubber	
Boots and shoes	2 50 3 00
High rubber boots	1 75 2 00
Auto tires	0 25 0 50
Solid tires	0 75 1 00

STRONG UNDERTONE IN CORRUGATED SHEETS

Toronto.

As an indication of the strength underlying the current trend of corrugated sheets, it is pointed out that, "English mills last year were selling No. 24 gauge corrugated sheets, which they regard as a sort of standard at about £15 sterling, and now they are firm at £18 with an advance of 30 cents in the cost of a pound sterling to a Canadian buyer; all of which has a very stimulating tendency towards firmness in domestic markets." While present trading is quiet, another

(Continued on page 42)



MUELLER **1½ inch Waste** **and Overflow** **A-2435**

This **MUELLER** connection, because of several late improvements in construction, can be installed much quicker than any other make. The waste elbow and overflow are cast brass, overflow strainer is cast and the waste strainer is of heavy wrought brass.

Toronto By-law Requires **1½ inch Waterway**

Toronto City By-law demands that 1½ in. waste and overflow be used, as being perfect in construction, capable of the best service and entirely satisfactory in every way.

Correct designs, the right raw materials and a fine precision in workmanship, make **MUELLER Brass Goods** stand every test and give dependable and enduring service.

Write for catalogue and prices. Mail orders given immediate attention.

H. MUELLER MFG. CO., LTD.
SARNIA, ONT.

Water, Plumbing and Gas
Brass Goods and Tools

American Factory at Decatur, Ill., U. S. A.
Branches, New York and San Francisco

Mueller Metals Co., Port Huron, Mich., Makers of "Red Tip"
Brass Rod, Brass and Copper Tubing; Forgings and Castings
in Brass, Bronze and Aluminum; Die Castings in White Metal
and Aluminum; also Screw Machined Products.

season of brisk activity is generally anticipated with the arrival of spring weather.

CORRUGATED SHEETS—	Per 100 Sq. Ft.
No. 28 gauge	6 50
No. 26 gauge	7 00
No. 26, U. S. gauge	8 00
No. 24 gauge	9 00
No. 22 gauge	11 00
No. 20 gauge	12 50
No. 18 gauge	16 50

Less 10 per cent.

Lighter than 24 gauge and wider than 27 inches, \$0.75 per square extra.

TIN PLATE MAKERS LOOK FOR ADVANCE

Toronto.

It is foreshadowed in certain quarters that there may be an upward revision in tin plate prices in the near future. Producers in southern fields claim that owing to rising costs they are hardly breaking even at existing levels. Current domestic quotations are considered strong.

PLATES, CANADA—	Per box
Ordinary, 52 sheets	4 90
Dull, 60 sheets	5 00
Blued and oiled, boxes 52's	5 50
Do., boxes, 60's	5 60

WELSH CANADA PLATES—	
Cold polished, 18 x 24, 60's	6 25
Cold polished, 18 x 24, 60's	6 50

PLATES, COKE TIN—	
IC, 20 x 28, 112 sheets	12 75
IX, 20 x 28, 112 sheets	15 00
IX, 20 x 28, 56 sheets	8 50

PLATES, CHARCOAL TIN—	
IX, 20 x 28, 112 sheets	10 00
IX, 20 x 28, 56 sheets	12 00

PLATES, TERNE—	
IC, 14 x 20, 112 sheets	12 00

REACTION HAS DEVELOPED IN INGOT COPPER

Toronto.

Lead and antimony have recorded slight price advances in the ingot metal markets. The general undertone, however, remains steady, in the non-ferrous group, with the exception of copper. In this metal another reaction has developed.

COPPER.—A reactionary movement has been the feature of the copper markets. There has developed a break in sterling exchange which resulted in corresponding easier prices, and a reluctance to trade. Business is described as dull and inquiries are light. Domestic price levels remain fundamentally unchanged.

TIN.—This market remains steady, although some slightly lower prices have developed in primary centres. Fair-sized purchases are being made by consumers, which degree of trading serves to keep up interest. Local tin prices are firm at the levels given below, with some slightly higher quotations appearing in certain quarters.

LEAD.—This metal continues in a strong position, both in primary and domestic markets. Local price levels have risen in proportion, the increase, however, being of minor extent. The trend of the market is described as upward owing to limited offerings.

SPELTER.—There is no outstanding development in zinc. The markets are described as moderate at present, with the general situation unchanged. Quotations are reported a shade easier in primary centres, but local figures remain unchanged.

ANTIMONY.—Quotations locally have recorded a slight advance, but current trading shows no unusual feature this week. The general tone is described as steady. The current tendency is considered steady to firm.

ALUMINUM.—Business in aluminum is said to be improving, especially in primary markets. Forward bookings are reported in good volume, with a stronger

undertone consequently evident. Some rumors of further price advances pending are noted, but no changes have developed up to the present.

INGOT METALS—

Copper	17 25
Tin	45 00
Lead	7 75
Spelter	9 50
Antimony	9 00
Aluminum	22 00

Winnipeg Markets

WINNIPEG, January 30.—A lengthy budget of price revisions is recorded on plumbing and steam-fitting supplies. Higher price levels are noted on range boilers and cotton waste. Lever handle throttle valves, and Lunkenheimer valves show a slight decline. Compression bibbs, sill cocks, injectors and basin, pantry and compression bath cocks are also quoted at lower levels.

LEVER HANDLED THROTTLE VALVES AT LOWER DISCOUNTS

Winnipeg.

New discounts are in effect on Lunkenheimer relief safety and lever handled throttle valves. Throttle valves are quoted at 14 per cent. advance, relief valves at 9 per cent. and safety valves at 16 per cent.

LUNKENHEIMER VALVES SHOW DECLINE

Winnipeg.

A decline in discounts has also been recorded in Lunkenheimer valves. Following are the latest quotations.

LUNKENHEIMER VALVES—

No. 140	32% Adv.
No. 141	32½ Adv.
No. 144	11%
No. 145	11%
No. 145½ net list.	
No. 146 and 147	35% Adv.
No. 148H, 148V, 148A, 1½ to ¾ in.	49% Adv.
1 to 2 in.	35% Adv.
No. 149, ½ to ¾ in.	17% Adv.
1 to 2 in.	12½% Adv.
No. 142, ¼ to ¾ in.	34% Adv.
1 to 3 in.	25% Adv.
No. 143, ½ to ¾ in.	29% Adv.
1 to 4 in.	17% Adv.

DURO BLOW OFF VALVES AT LOWER LEVELS

Winnipeg.

Lower discounts are in effect on Duro blow off valves. Latest discount is plus 55 per cent.

REVISED PRICES ON LUNKENHEIMER INJECTORS

Winnipeg.

There has been a revision in discounts on Lunkenheimer injectors and injector repairs. Lunkenheimer injectors are quoted at 59 per cent. and repairs at 4 per cent.

COMPRESSION BIBBS SHOW REVISION IN DISCOUNT

Winnipeg.

Compression bibbs show a revision in discount and are quoted at less 45 per cent. off list price.

SILL COCKS AT LOWER DISCOUNTS

Winnipeg.

Sill cocks, wash trays, bibbs, boiler drain cocks, compression stops and stop and waste cocks show a decline in dis-

counts. The following lines are quoted as follows;

SILL COCKS—

Nos. 835 and 835½—discount price .. 50%

WASH TRAY BIBBS—

No. 836, discount price .. 49%

BOILER DRAIN COCKS—

No. 837, each .. .80

COMPRESSION STOPS—

No. 825, discount price .. 45%

No. 826, discount price .. 37%

No. 827, discount price .. 37%

GROUND KEY COCKS—

Discount price .. 40%

STOP AND WASTE COCKS—

No. 839, discount price .. 37%

No. 839A, discount price .. 65%

COTTON WASTE SHOWS AN ADVANCE

Winnipeg.

There has been an advance in quotations on cotton waste and the following are quoted as follows:—

COTTON WASTE—

No. NEH, full bales, per bale .. \$17 25

Broken quantities, per lb. .. 0 18½

No. REM, full bales, per lb. .. 0 20

Broken quantities, per lb. .. 0 21

Colored, full bales, per bale .. 14 75

Broken quantities, per lb. .. 0 15¾

Wool waste, colored, full bales, per lb. .. 0 20

Broken quantities, per lb. .. 0 21

RANGE BOILERS AT ADVANCED PRICE LEVELS

Winnipeg.

As stated in the previous issue manufacturers had advanced their prices on galvanized range boilers and as wholesalers stocks are now absorbed, new arrivals are quoted at \$11.85 for 30 gallon.

COMPRESSION BATH COCKS SHOW SLIGHT DECLINE

Winnipeg.

There is a slight decline in quotations on basin, pantry and compression bath cocks and the following quotations are now in effect.

BASIN COCKS—

No. 804, per doz. \$19 80

No. 800, per doz. 17 40

No. 804½, less discount .. 50%

No. 804¾, each .. 2 05

No. 805, per doz. 24 30

No. 806, less discount .. 42%

PANTRY COCKS—

No. 812, less discount .. 32%

COMPRESSION BATH COCKS—

No. 817, each .. \$ 3 88

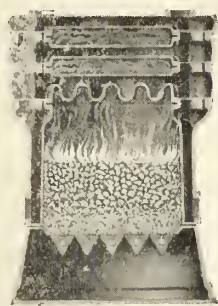
No. 818, each .. 4 68

No. 818A, each .. 3 43

No. 818B, each .. 4 25

No. 819, less discount .. 52%

No. 819A, less discount .. 52%



Three Times
As Big
As It Looks

That is, three times bigger in heat-giving qualities. This bigness comes from the corrugated crown plate, which has three times the fire surface that a flat one has.

No wonder the Burnham is such an economical boiler.

Write for complete information.

Lord & Burnham Co. Limited
of Canada

(Boiler Department)

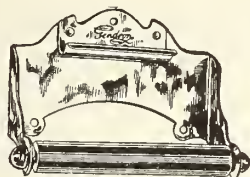
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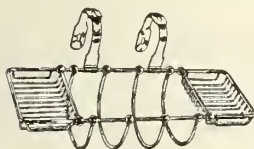
Factory — St.
Catharines,
Ontario

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in Bathroom Fittings
and Hardware Special-
ties trade right after
the New Year.



This year YOU can
make a lot of extra
money by keeping an
attractive display of a
fairly wide range of



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Gendron
CANADA

Bathroom Fittings and
Hardware Specialties
constantly before your
customers.

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Catalogue "G"

The Gendron Mfg. Co., Ltd.
Duchess Street, Toronto

Good Plumbing Calls For JENKINS VALVES

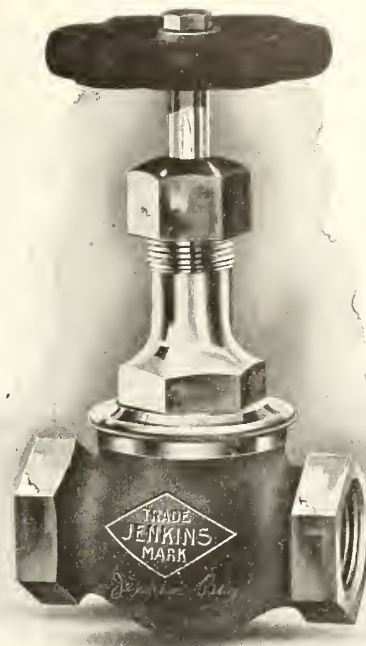


Fig. 106
Jenkins Brass Globe Valve.

What makes Jenkins Valves so
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is—

The high-grade Brass, Iron
or Cast Steel from which
they are made.

The scientific way in which
they are constructed.

The scrupulous care with
which every valve is tested
for service before leaving
the factory.

Jenkins Valves are **DEPENDABLE** even
under unusually severe conditions.

Plumbing and Heating Contractors
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It will be mailed on request.

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Jenkins Valves
SINCE 1864

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H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
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United Brassfounders & Engineers, Ltd., Manchester, Eng.
Wallaceburg Brass & Iron Mfg. Co., Ltd., Wallaceburg, Ont.
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United Brassfounders and Engineers, Ltd., Manchester, Eng.
Wallaceburg Brass & Iron Mfg. Co., Ltd., Wallaceburg, Ont.
Wolverine Ltd., Toronto, Ont.
W. H. Cunningham & Hill, Ltd., Toronto

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Empire Mfg. Co., Ltd., London and Toronto.
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United Brassfounders & Engineers, Ltd., Manchester, Eng.

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Hercules Chemical Co., Inc., New York City.

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Standard Sanitary Mfg. Co., Ltd., Toronto, Hamilton.
Port Hope Sanitary Mfg. Co., Ltd., Port Hope.
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The manufacturer or jobber of plumbing and heating supplies who has an honest product and honest service to sell is always anxious to tell his message to the trade.

The announcements of those manufacturers and jobbers of plumbing and heating supplies who have neither of these things to offer will not be found in the pages of this journal because open publicity is the last thing desired in such cases.

Advertising is not lightly accepted by this paper and the product to be advertised must measure up to this standard—"Will it give honest service to the ultimate buyer—Will the manufacturer stand back of it four square?"

That's why Canadian Sanitary and Heating Engineers can feel quite safe in buying products advertised in this paper. And that's why only the best products will be found advertised here.

TAKE NO CHANCES
Buy the Advertised Lines

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Standard Sanitary Mfg. Co., Ltd., Toronto.
Hamilton.

Toronto Hardware Mfg., Co., Toronto.
Warden King, Ltd., Montreal.

PIPE THREADING TOOLS AND MACHINERY

Borden Canadian Co., Toronto.
A. B. Jardine & Co., Hespeler.
W. H. Cunningham & Hill, Ltd., Toronto.

PIPE WRENCHES

J. H. Williams Co., Brooklyn, New York.
W. H. Cunningham & Hill, Ltd., Toronto.

PLUMBERS' TOOLS

J. H. Williams & Co., Montreal, Que.
W. H. Cunningham & Hill, Ltd., Toronto.

PNEUMATIC WATER SUPPLY TANKS

Empire Mfg. Co., London and Toronto.

PORCELAIN WARE

Canada Metal Co., Ltd., Toronto.
Empire Mfg. Co., London and Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.

PUMPS

W. H. Cunningham & Hill, Ltd., Toronto.
Grant E. Cole Co., 23 River Street, Toronto.
H. Mueller Mfg. Co., Limited.
The Westco Pumps Limited, Toronto.
United Brassfounders & Engineers, Ltd.,
Manchester, Eng.

PUMPING SYSTEMS, AUTOMATIC

Canada Metal Co., Ltd., Toronto.
H. Mueller Mfg. Co., Limited.
The Westco Pumps, Limited, Toronto.
Beaton & Cadwell Mfg. Co., New Britain, Conn.

RADIATORS

Gurney Foundry Co., Limited, Toronto.
Lord & Burnham Co., Ltd., Toronto.
Warden King Ltd., Montreal.

RADIATOR HANGERS

Healy Ruff Company.

RADIATOR NIPPLES

Fittings, Limited, Oshawa.

RADIATOR TRAPS (STEAM)

C. A. Dunham Co., Ltd., Toronto.
Grant E. Cole Co., 23 River Street, Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
United Brassfounders & Engineers Ltd., Man-
chester, Eng.

RIVETS

Fittings, Limited, Oshawa.

RANGE BOILERS

Standard Sanitary Mfg. Co., Ltd., Toronto.
Hamilton.

The Canadian John Wood Mfg. Co., Toronto.
Toronto Hardware Mfg. Co., Toronto.

REDUCING PRESSURE VALVES

Grant E. Cole Co., 23 River Street, Toronto.
C. A. Dunham Co., Ltd., Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
United Brassfounders & Engineers, Ltd.,
Manchester, Eng.

RETURN TILTING TRAPS

Grant E. Cole Co., 23 River Street, Toronto.

ROOF FLANGES AND FLASHINGS

Canada Metal Co., Ltd., Toronto.
Empire Mfg. Co., London and Toronto.
Standard Sanitary Mfg. Co., Ltd., Toronto,
Hamilton.

SEPTIC TANK VALVES AND SYPHONS

Anthes Foundry Co., Ltd., Toronto.
Empire Mfg. Co., London and Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.

SINK BRACKETS

Fittings, Limited, Oshawa.

SOCKETS, WIRE ROPE

J. H. Williams & Co., Montreal, Que.

SOLDER

Canada Metal Co., Ltd., Toronto.

STEAM SPECIALTIES

Grant E. Cole Co., 23 River Street, Toronto.
C. A. Dunham Co., Ltd., Toronto.
Empire Mfg. Co., London and Toronto.
Kerr Engine Co., Walkerville, Ont.
United Brassfounders & Engineers, Ltd.,
Manchester, Eng.

STEAM TRAPS

Grant E. Cole Co., 23 River Street, Toronto.
C. A. Dunham Co., Ltd., Toronto.
United Brassfounders & Engineers Ltd.,
Manchester, Eng.

STOVES

Gurney Foundry Co., Limited, Toronto.

STOVES, GAS AND COAL

Gurney Foundry Co., Ltd., Toronto.

SWIVELS, HOOK

J. H. Williams & Co., Brooklyn, N.Y.

TANKS, STEEL

The Canadian John Wood Mfg. Co., Toronto.

TANK BULBS, (RUBBER)

Canada Metal Co., Ltd., Toronto.
W. H. Cunningham & Hill, Ltd., Toronto.

THUMB SCREWS AND NUTS

J. H. Williams & Co., Brooklyn, N.Y.

TOOLS

Wolverine, Ltd., Toronto.
Empire Mfg. Co., London and Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
Standard Sanitary Mfg. Co., Ltd., Toronto,
Hamilton.
J. H. Williams & Co., Brooklyn, N.Y.
W. H. Cunningham & Hill, Ltd., Toronto.

TORCHES

W. H. Cunningham & Hill, Ltd., Toronto.

UNIONS

Canada Metal Co., Ltd., Toronto.
Empire Mfg. Co., London and Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
United Brassfounders & Engineers, Ltd.,
Manchester, Eng.

VAPOR HEATING SYSTEMS

C. A. Dunham Co., Ltd., Toronto.

VICES, CHAIN, CLAMP, MOUNT

J. H. Williams & Co., Brooklyn, N.Y.

VITRO TANKS

Galt Brass Co., Ltd., Galt.

VACUUM SYSTEMS OF HEATING

C. A. Dunham Co., Ltd., Toronto.

VALVES

Empire Mfg. Co., London and Toronto.
Jenkins Bros., Ltd., Montreal, Que.
The Kerr Engine Co., Walkerville, Ont.
United Brassfounders & Engineers Ltd.,
Manchester, Eng.

WATER SUPPLY SYSTEMS

Empire Mfg. Co., London and Toronto.
Standard Sanitary Mfg. Co., Ltd., Toronto
Hamilton.
The Westco Pumps, Limited, Toronto.

WASHERS

Canada Metal Co., Ltd., Toronto.
W. H. Cunningham & Hill, Ltd., Toronto.

WASHING MACHINES

Gurney Foundry Co., Ltd., Toronto.

WRENCHES, SET, DROP FORGED,

ENGINEERS, SOCKET AND CHAIN PIPE

J. H. Williams & Co., Brooklyn, N.Y.

WROUGHT COUPLINGS AND NIPPLES

Canada Metal Co., Ltd., Toronto.
Fittings, Ltd., Oshawa.

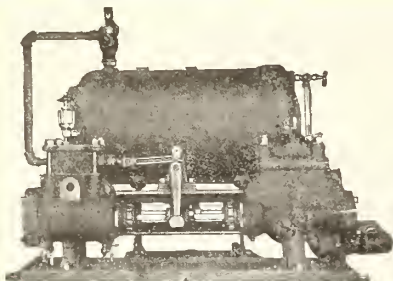


Fig. 153.

Buy Your Heating and Plumbing Machinery Direct from the Maker

You can save real money and at the same time
be absolutely certain of getting what you want
when you deal directly with us.

Smart Turner equipment includes Automatic
Feed Pumps—both steam and motor driven,
Boiler Feed Pumps, Foot Valves and Strainers,
Sump Pumps, Steam and Oil Separators.

Write to-day for catalogue and prices.

The Smart Turner Machine Co.

Limited

Hamilton

Canada

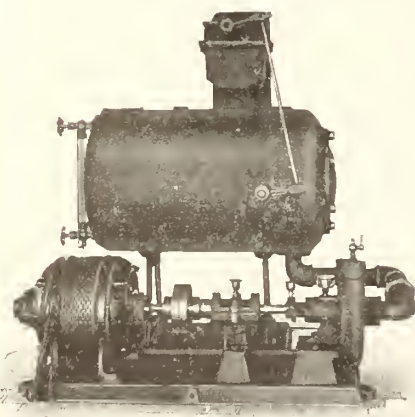
No. 115 Screwed Foot
Valve.

Fig. W-155.

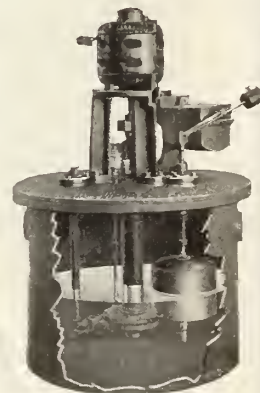


Fig. W-202.

If it's advertised in Sanitary Engineer you know it's all right.



KERR VALVES

Look at this Valve

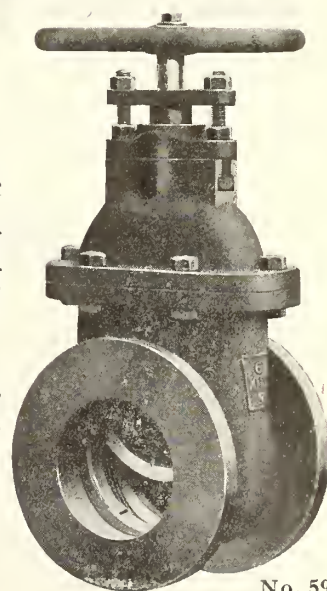
Note the design, the sturdy construction, note the compact and narrow face to face dimensions, observe the accessibility of the stuffing box; and the properly spaced bolting.

The Kerr Gate Valve here illustrated gives complete satisfaction whenever and wherever used.

Ask for Kerr's Valves



No. 60



No. 59

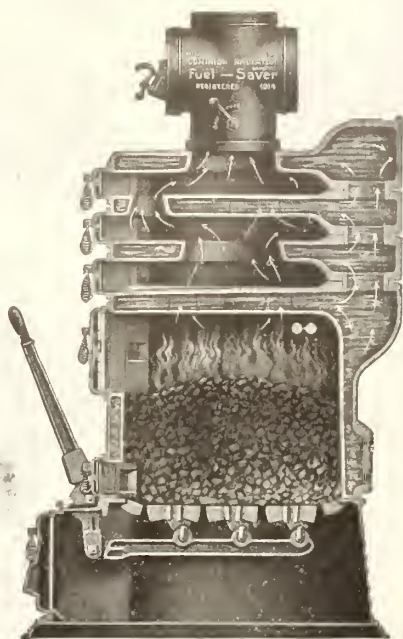
The **KERR ENGINE COMPANY**
 LIMITED

WALKERVILLE

Valve Manufacturers

ONTARIO

The Heart of the Heating System



"Mogul" Hot Water Boiler

(Nos. 1, 2, 3, Constructed
as above)

The Mogul Boiler is the heart of the heating system; a great, warm, pulsing dependable heart that withstands for years the effect of use and deterioration.

From base to fuel saver, the boltless-cotter-pinless grate bars, the specially designed fire-pot, the lined doors, the individual flue doors, the wire handles, the peculiarly designed sections, the rapid circulation, the packless joints, the few parts, the ease of handling and the guaranteed ratings, place the Safford Mogul Boiler in a class by itself.

Write for illustrated booklets.

The Dominion Radiator Company
Limited.

Halifax, N.S.
St. John, N.B.
Calgary, Alta.

TORONTO
OTTAWA

Montreal, Que.
Winnipeg, Man.
Regina, Sask.
Vancouver, B.C.

The Difference in Advertising Is the Difference in Men

Of itself, advertising is little. And the differences in it are the differences which exist in men.

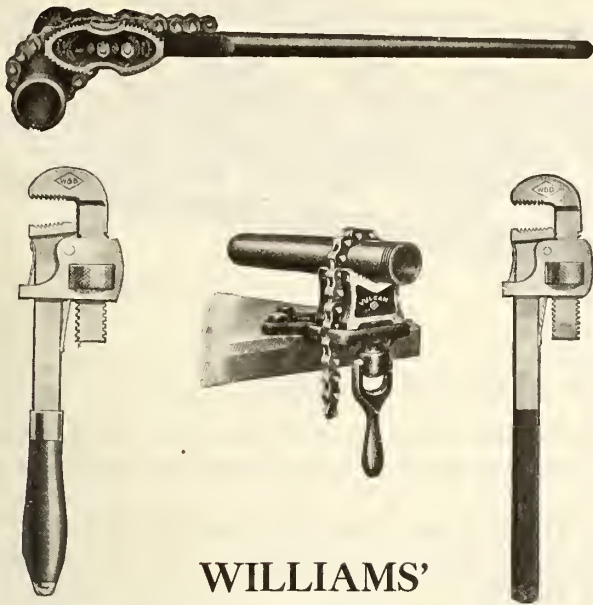
Just as some men are strong and virile and interesting, so is some advertising. And just as some men are ineffectual and weak and boring, so is some other advertising.

"Does it pay to advertise?" It pays those men who are keen enough students of the public to make it pay them. It pays those men who are truthful, sincere, interesting and believable.

It pays the men whose product deserves the payment, whose brains are keen enough to organize for success and judge enough of the human mind to know how to tell their story with sincerity and interest.

So when you judge advertising, judge it by how it is used and by whom—not of itself and of itself alone.

Remember, an ugly man looks just as ugly in a mirror.



WILLIAMS'

SUPERIOR PIPE TOOLS

**"VULCAN" CHAIN WRENCH and VISE
STILLSON WRENCHES**

Literature on Request

J. H. WILLIAMS & CO., Limited

"The Drop-Forging People"

77 Thorold Road, St. Catharines, Ont.

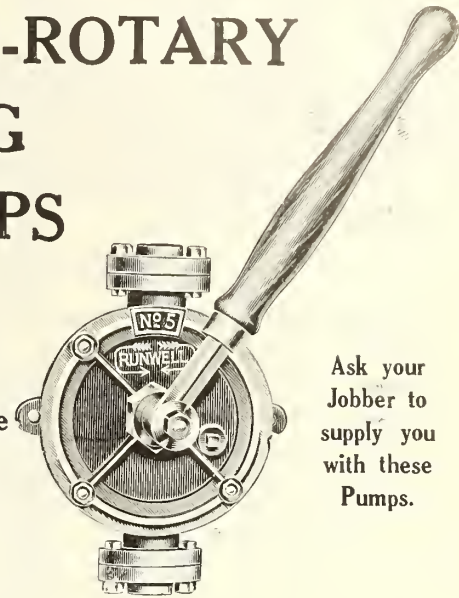
TRADE

RUNWELL

MARK

SEMI-ROTARY WING PUMPS

British
Manufacture



Ask your
Jobber to
supply you
with these
Pumps.

Representatives:

BRITISH COLUMBIA; U.S.A.—WASHINGTON, OREGON, CALIFORNIA.

FRANK RAW & CO., 198 Hastings St. W., Vancouver, B.C.

MANITOBA, SASKATCHEWAN, ALBERTA:

FREDERICK SARA & CO., Calgary.

ONTARIO, QUEBEC, MARITIME PROVINCES:

UNIVERSAL SUPPLIES, LTD., 212 Coristine Bldg., Montreal

The Everlasting Veneer Toilet Seat

**Strong, Clean
Hygienic**

This reliable, dependable toilet seat is made of 7 and 9-ply, air-seasoned wood veneer, held together by our special wood cement. This cement is proof against heat, cold or dampness. The veneering is distributed according to the strain and wear required of the different parts. The Everlasting Seat will never crack, warp or split.



It is a splendid seat for use in cold, damp basements where closets must be installed. The Everlasting Toilet Seat will meet, and successfully resist, these severe conditions of moisture, changing temperature, etc.

**Canadian
Veneering Company,
Incorporated**

Acton Vale

Quebec

TRIMO A Winner Always

The "Trimo" Wrench, with Steel Frames, that do not break, and Nut Guards that protect the adjusting nut is a winner.



Has insert jaw in handle, replaceable when worn, saving the handle. A hidden spring always in place. Made in both wood handles and steel handles.

Trimont Manufacturing Co.

55-71 Amory Street,
ROXBURY (BOSTON), MASS., U.S.A.

CANADIAN REPRESENTATIVE:

George P. Fraser, 28 Temple Ave.

TORONTO

Wanted

Rates for Classified Advertising

Advertisements under this heading 3c per word for first insertion; 2c for each subsequent insertion.

Where answers come to Box number in our care to be forwarded, 5 cents extra per insertion must be added to cover postage, etc.

Contractions count as one word, but five figures (as \$1,000), are allowed as one word.

Rates (payable in advance). When panels are desired a charge of \$2.50 is made for a panel 1 inch deep by 2½ inches wide. Minimum charge for any ad. \$1.00.

WANTED

ENGLISH FIRM wishes to purchase large quantity of new and good secondhand screwed and socketed tubes, sizes 2" to 6". Also Weldless Loose Flanged Tubes. Writes "Tubes" c/o Taylors, 30 Fleet St., London, England.

SITUATION WANTED

YOUNG MAN—21 YEARS OF AGE, SEEKS steady employment with plumber who will teach him the trade. Box 108, Sanitary Engineer Toronto.

FOR SALE

FOR SALE—PLUMBING, HEATING AND tinsmithing business, established twelve years, in one of the best cities in Western Canada. Agency for a leading line of furnaces. Sickness the only cause for selling. Box 224, Hardware & Metal, Toronto.

ADDRESSING MACHINE FOR SALE—WE have a complete Belknap Addressing Equipment for sale. This equipment is still in use in our Subscription Department and is in excellent working order. We have placed an attractive price on this outfit, and would advise manufacturers or merchants having a mailing list to let us tell you how it will save you money. We will give a guarantee as to the proper working condition of this equipment. The MacLean Publishing Co., Ltd., 143 University Avenue, Toronto, Ontario.

Sanitary Engineer

is the logical medium to use if you have a message for the Plumbing and Heating trade of Canada

OPPORTUNITY FOR SALESMEN

Wanted: Salesmen in various parts of Canada calling on retail trade, to carry sideline which we feel sure will be approved by his principals and will increase the purchasing power of his clients.

Earnings will be on a commission basis and should amount to a substantial figure. Applicants must have good record for production, and must give satisfactory references as to character, reliability, etc.

Apply, giving experience, references and names of firms by whom employed during past ten years; also state definitely the territory you cover and how frequently you go over the ground. No application considered unless this information is given. All applications will be treated in strictest confidence.

Box 600

SANITARY ENGINEER, 143 University Ave., Toronto

TAYLOR SAFES FOR SALE—RARE OPPORTUNITY to secure a safe at small cost. They are in splendid condition. Inside dimensions and prices are as follows: 15 in. deep, 2 ft. 6 in. wide, 3 ft. 11½ in. high, fitted with built-in compartment. Price \$250.00. 18 in. deep, 2 ft. 8 in. wide, 4 ft. 5 in. high, fitted with steel compartment. Price \$200.00. Apply Box No. 701, Sanitary Engineer, Toronto.



DIRECT CURRENT MOTORS KINGSTON PENITENTIARY

SEALED TENDERS addressed to "The Superintendent of Penitentiaries, Ottawa," and endorsed, "Tender for Motors" will be received until Wednesday, February 28, 1923, from parties desiring to purchase any or all of the following electric motors:—

No.	H.P.	Volts	Revolutions	Manufacturer
1	10	100	850 R.P.M.	Dick Kerr Mfg. Co.
1	15	110	960 R.P.M.	Dick Kerr Mfg. Co.
1	1	110	1725 R.P.M.	Sprague Electric Co.
1	10	110	1100 R.P.M.	Peerless Motor Co.
(Direct connected to fan)				
1	10	110	850 R.P.M.	Dick Kerr Mfg. Co.
1	10	110	850 R.P.M.	Dick Kerr Mfg. Co.
1	5	110	(650 to 1500 R.P.M.)	Westinghouse, no base.
1	35	110	1800 R.P.M.	Westinghouse, no base.
1	3	110	1650 R.P.M.	Jones and Moore.
1	3	110	1100 R.P.M.	General Electric Co.
1	10	110	1400 R.P.M.	General Electric Co.
1	15	110	1150 R.P.M.	General Electric Co.
1	30	110	Variable	Westinghouse (Grids and Controller)
1	10	110	Variable	Westinghouse (Grids and Controller)
1	1	110		Westinghouse
(Armature will require to be rewound.)				

Starters Supplied With All Motors

The above mentioned are in good repair and may be viewed at the Kingston Penitentiary, Kingston, Ont.

Terms of sale—cash. Motors to be removed from the Penitentiary before March 20, 1923.

Papers inserting this notice without authority from the King's Printer, will not be paid therefor.

(Signed) W. ST. PIERRE HUGHES, D.S.O.
Superintendent of Penitentiaries.

Department of Justice
Ottawa, January 25, 1923.

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Prepare for High Water Instal Wolverine Back Water



Valves

**Absolutely
automatic.**

**Fitted with closable
strainer and Ball
Float.**

**For 4-inch Soil
Pipe.**

**Prompt Shipment. Large Stock.
Better Order To-day.**

WOLVERINE

LIMITED

76 Nelson St. Toronto-

"Sure Seat" Tank Balls



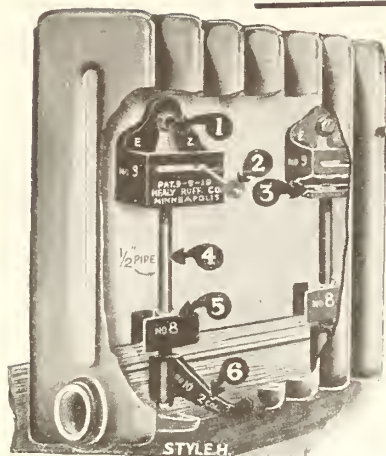
**Finest
Quality**

Durable

Reliable

**Absolutely
Guaranteed**

**It pays to have Wolverine Articles on
hand for instant use. ORDER NOW.**



TRY IT! The E-Z Radiator Hanger

You'll only have to try it once because it always works satisfactorily and there is a demand for more all the time.

It hangs radiators securely and is a real device to give a neat and complete finish to the interior of every home.

The E. Z. Radiator Hanger has one Bolt, Invisible Washer, Horizontal Adjustment, Vertical Adjustment, Baseboard Adjustment.
Made for Wall and Column Radiators.

IMMEDIATE SHIPMENTS FROM LARGE STOCKS

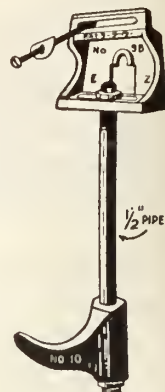
MADE IN CANADA

HEALY-RUFF CO.

MINNEAPOLIS, MINN.

J. H. Leonard, Tribune Bldg., Winnipeg.
D. G. Brison, Standard Bank Building
Vancouver.
A. Walker, 514 McLean Bldg., Calgary.
E. T. Flanigan, 229 College St., Toronto.

Eager Coombs & Co., Ltd. Halifax,
Can.
Shaver Bros., Booth Bldg., Ottawa.
S. T. Hadley, 304 University St.,
Montreal.



"Style R."

THE TRADE

*Is Respectfully Cautioned
to specify*

RIVETED RANGE BOILERS

Made by the old reliable

**TORONTO HARDWARE
MFG. CO., LIMITED**

WROUGHT PIPE



Suitable for the approaching period of building activity, road construction, etc. This is a line of great importance in making successful, profitable contracts. Our C. T. Brand of Wrought Pipe has been

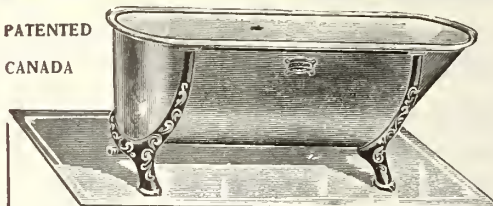
THOROUGHLY INSPECTED

by practical, experienced men. It is tested to 600 lbs. hydraulic pressure, and branded with our trade-mark. We carry this line of reliable pipe in sizes 1/8-in. to 4-in. Black or Galvanized. We also manufacture nipples and couplings, black and galvanized, in all sizes.

Ask your Jobber for C. T. Brand Wrought Pipe

Canadian Tube and Steel Products Co., Ltd.
Operating Canadian Tube and Iron Co., Limited
Works at Lachine Canal, Montreal

PATENTED
CANADA



**Better
Selling
Value
Than Ever**

We have equipped our Steel Baths with Pressed Steel Removable Legs and 3 inch Roll Rim around the top, for which we have secured a Canadian Patent. This Roll Rim adds greatly to the selling value of

TWEED ENAMELLED STEEL BATHS

They now look like the expensive cast enamel baths but are the same price as before. Our new patent Roll Rim Enamelled Steel Baths are now ready for shipment—Order samples.

The Steel Trough & Machine Co. Ltd.

Tweed—Ontario—Canada.

Toronto Office: 220 King St. W. Montreal Office: St. Nicholas Bldg.



Tapped Closet Bend

Easier to attach
More permanent
Cost less



Plumbers and Steamfitters—

There is only one kind of satisfactory tool and that is one that is in perfect working order. Inefficient tools are a direct liability to you.

Gather up your broken tools to-day, send them to us and we will quickly put them in shape for you.

CANADIAN SERVICE STATION
FOR BEAVER TOOLS

The Pipe Tool and Repair Co.

Adelaide St. W.

-:-

Toronto, Ont.

Repairmen to the Canadian Plumber and Steamfitter.

DART UNIONS

Union Pipe Couplings

are practically indestructible because they are made of Heavy Malleable Castings, and the joint being Bronze against Bronze, gives the strongest kind of guarantee that the Dart will stay as tight as it is first made when screwed to a pipe line.

The Dart's reputation is based on the opinion of others; ask anyone who has had experience with Dart Unions, regarding their efficiency.

ORDER FROM YOUR JOBBER. There's a variety of styles to fill all requirements.

MANUFACTURED BY

DART UNION CO., LIMITED
TORONTO, ONTARIO

BEAVER BRAND Porcelain Enamel Ware

—Your Guarantee of Quality—

Beaver Brand Enamelware by its ability to meet the highest demands for service under all conditions, has established itself in the confidence of the public to such an extent that each month witnesses an ever-increasing demand for products of Beaver manufacture.

Amherst Foundry Co., Limited

General Offices and Factory : Amherst, N.S.

Agents :

Ontario :

Monarch Brass Mfg. Co.
71 Brown St., Toronto

Manitoba and Northwest :

E. B. Plewes
197 Princess St., Winnipeg



Endurance

As the granite cliffs of our storm-beaten coasts defy indefinitely the fury of the waters, so does the Vitro Tank successfully resist the assaults of time.

The sheer, white beauty of the New Design Vitro shines in all its pristine splendour years after its installation has been made—after the date of that installation has been forgotten.

That Canadian people appreciate those qualities of strength, permanence and efficiency which combined with beauty makes Vitro the triumph that it is—is demonstrated by the fact that this tank still leads the Canadian market in sales.

Your Jobber has them

Galt Brass Company, Limited

GALT

ONTARIO

VITRO
NOTROUBLE
TANK

Sanitary Engineer

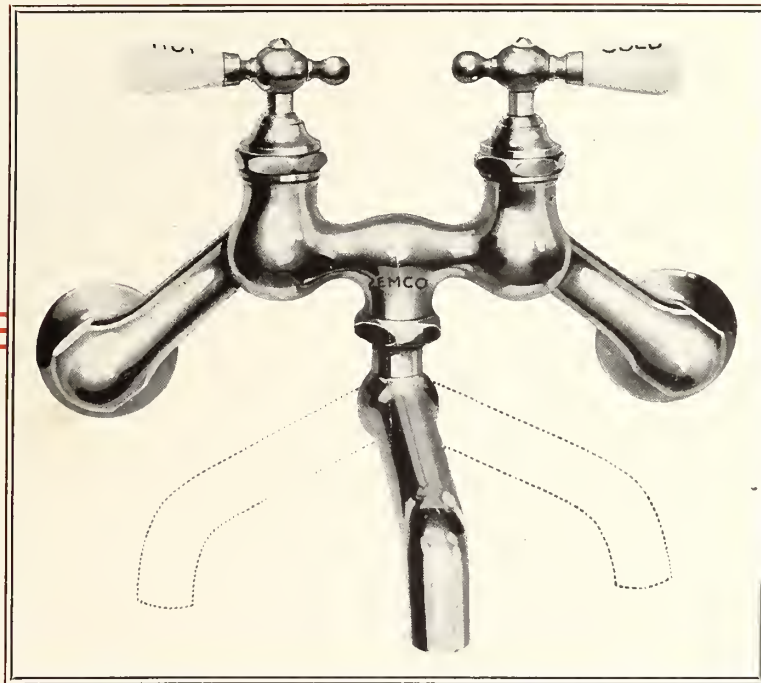
Plumber and Steamfitter of Canada

Vol. XVII.

PUBLICATION OFFICE, TORONTO, FEBRUARY 15, 1923

No. 4

Hot or Cold Water From the Same Spout



The New "Emco" Swing Spout Double Sink Cock

This "Emco" fixture—a recent addition to the "Emco" line—has already proved its popularity.

It combines two fixtures in one—hot or cold water from the same spout. Beauty and convenience are recognized in the design and finish of this fixture. Made of the best grade of metal.

Ask your Jobber or write direct to us.

Empire Brass Mfg. Co. Limited

LONDON and TORONTO, CANADA

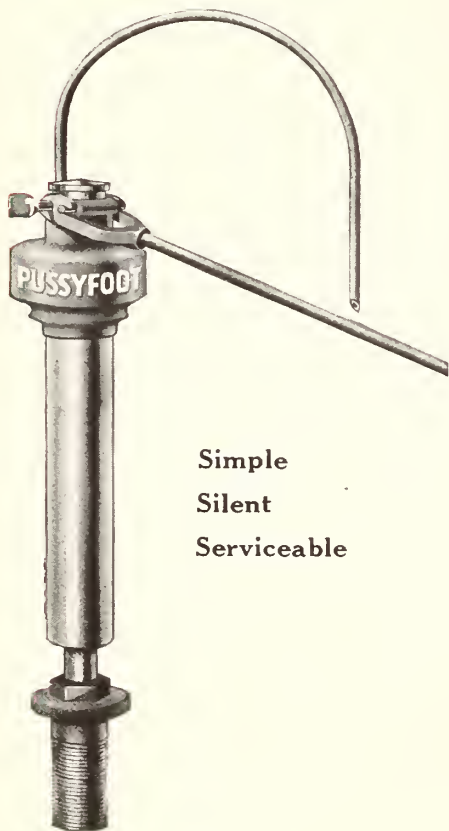
Plumbers! Pussyfoot Tanks

are exceptionally cheap for present booking.

Many Jobbers have taken advantage of the prevailing low prices, and

“Pussyfoot” Closet Tanks

*with
the*



Simple
Silent
Serviceable

Pussyfoot SIMPLEX VALVE

are the Best value any Plumber can buy.

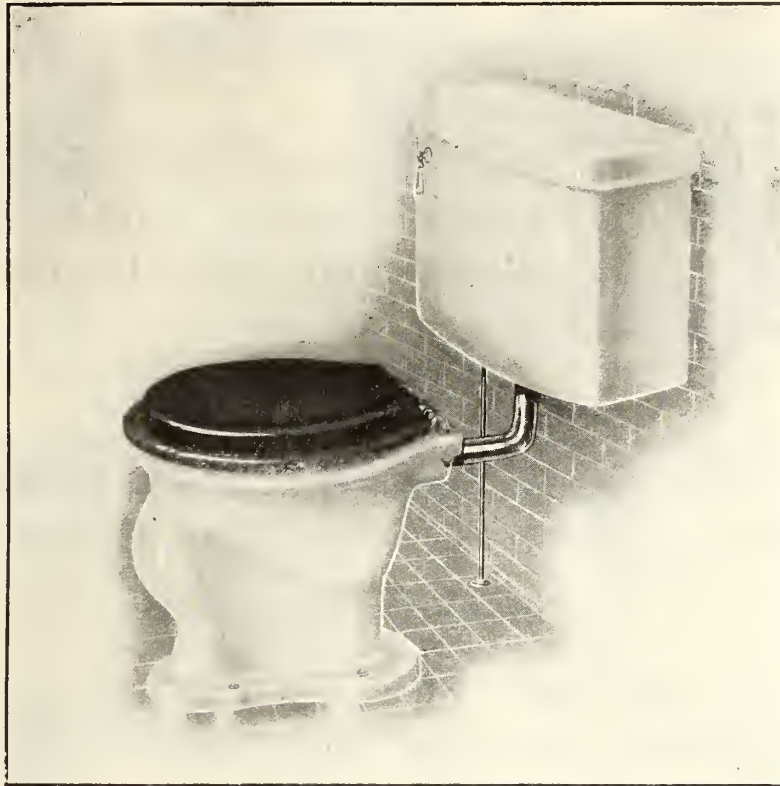
DEMAND these from your Jobber and get the benefit of the highest Efficiency and greatest Value in your Tank requirements.

*Guaranteed in Every Way
Buy from Your Jobber*

THE CANADA METAL COMPANY
LIMITED

Montreal Hamilton TORONTO Winnipeg Vancouver

You can profitably use the "A-1" On 90% of your installations



FULLY 90% of all Sanitary installations call for the ordinary wash-down combination—simply because it is about the most inexpensive type of closet outfit available.

But if your client exercises economy in choosing a closet combination of relatively low price, surely you can only serve his best interests by furnishing only the best his money can buy—the "A-1" Closet and "Bellemeade Junior" Tank.

CANADIAN Solid Vitreous Ware stands pre-eminently superior as a truly sanitary material in the construction of both closet bowls and tanks. Its fine-grained, all-clay hard-burned vitreous body ensures a lifetime of unchanging service while its lustrous white surface adds beauty to any toilet room and is as easily kept clean as a china plate.

On the basis of present prices this combination affords a realization of value which cannot be challenged.

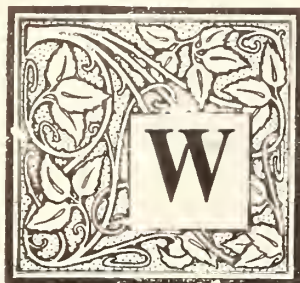
CANADIAN POTTERIES

LIMITED

SAINT JOHN'S
QUEBEC

Sales handled exclusively through recognized jobbers in Plumbing Supplies.

You are Invited



WE HAVE ready for distribution a series of four beautifully designed and printed bathroom scenes.

These truly beautiful pictures in four colors measure $10\frac{1}{2}$ x 13 inches and are worthy of framing. Used as ordinary hangers even, they compel attention by their charm.

Naturally these exquisite drawings depict "Standard" Fixtures. They carry in a delightful but impressive manner the charm of the modern, well equipped bathroom.

The high cost of these pictures necessitates careful distribution. Master plumbers are invited to write us on their business letterheads, when a set will be gladly mailed without charge.

Standard Sanitary Mfg. Co. Limited

General Office and Factory: Royce and Lansdowne Aves., Toronto, Ont.

Calgary:
354 11th Avenue West

Hamilton Store:
26-28 Jackson Street West

Montreal:
New Birks Bldg.

Winnipeg Showrooms:
145 Market Street East

"Made-in-Canada"

Vancouver:
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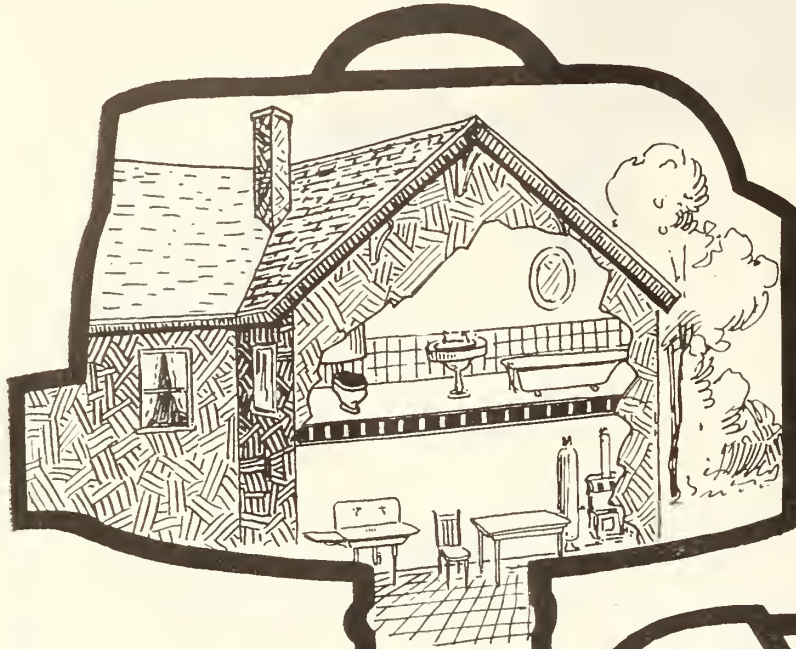
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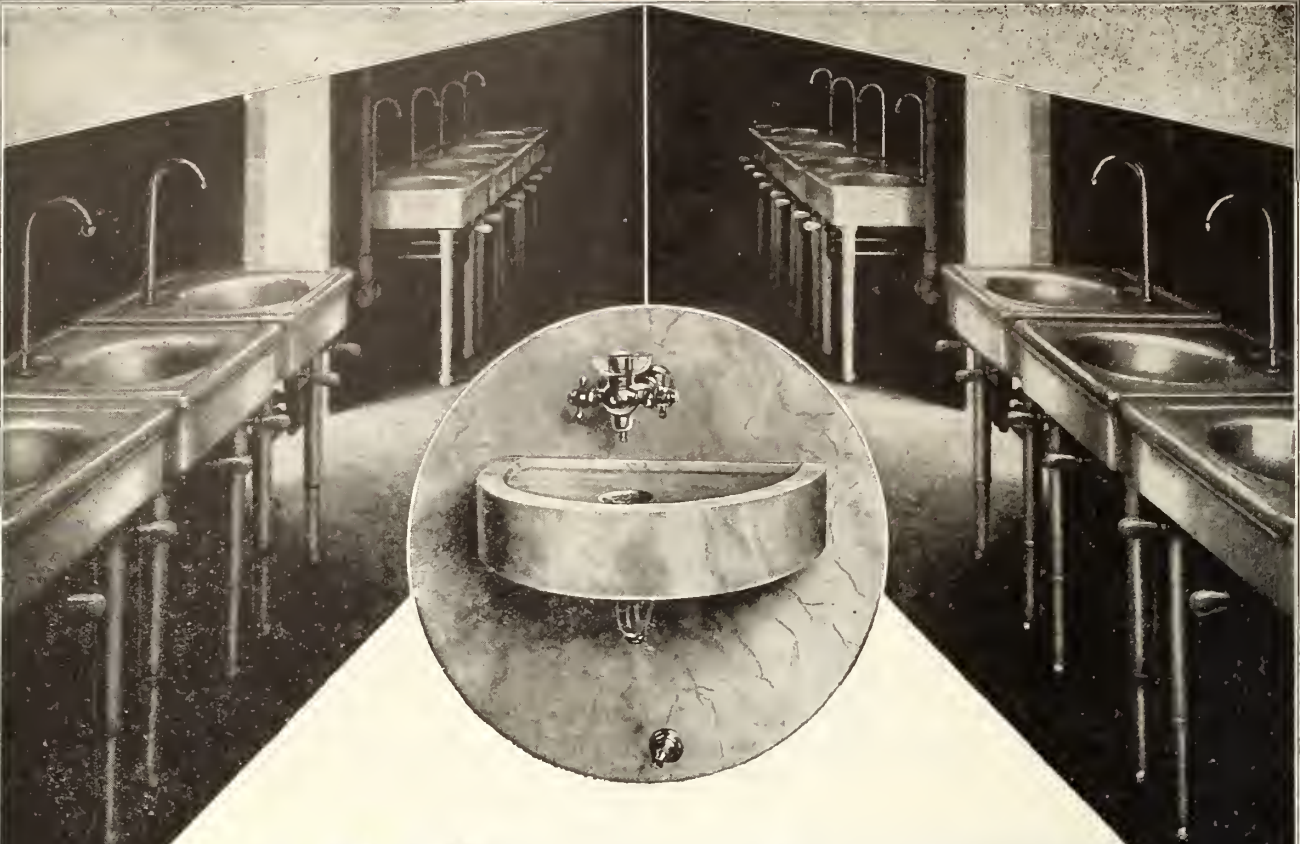
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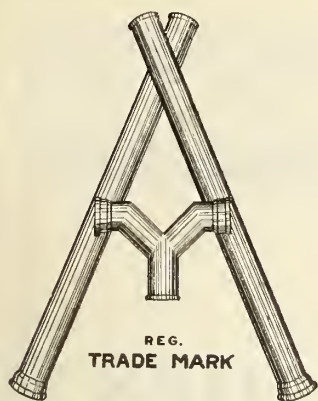
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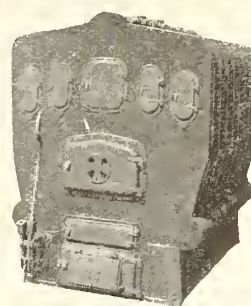
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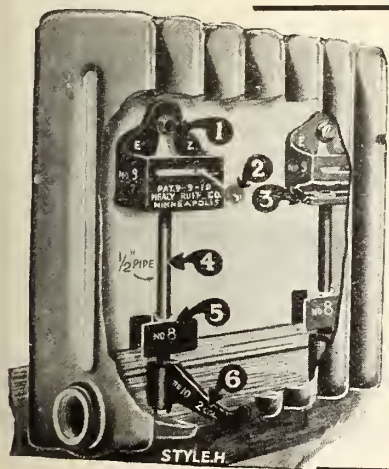
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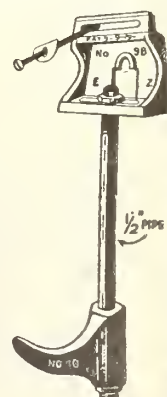
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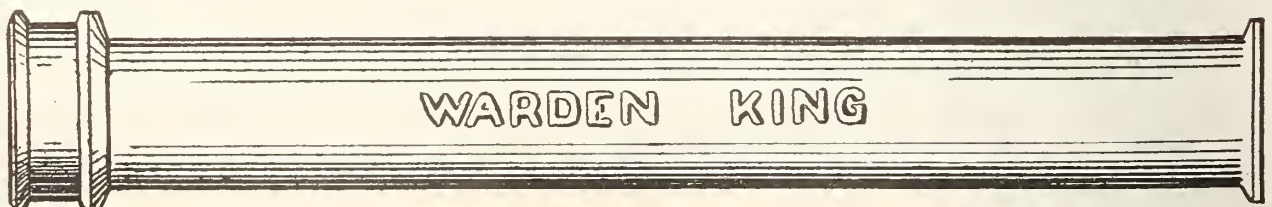
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SANITARY ENGINEER

PLUMBER AND STEAMFITTER OF CANADA

ESTABLISHED 1907

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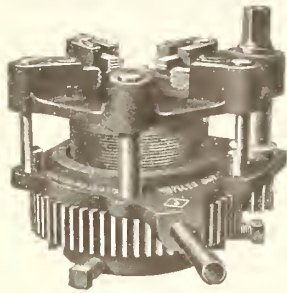
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TORONTO, FEBRUARY 15, 1923

No. 4

Plumber Had to Re-Order Certain Lines of Bathroom Fittings in Special Sale

Direct Contact With Public Through the Shop Windows Used to Best Advantage—Uses Speed Truck for Small Jobs and Emergency Work—Keeping Goodwill of Customers in Collecting Accounts—Making the Customer Appreciate the Store

THE growth of the plumbing firm of Band & Cole, in Ottawa, Ont., during the past year has been very noticeable and quite apparent to observant citizens. Having been acquainted with the members of this firm for some years, Sanitary Engineer has been interested in noting its development, and it is but logical that the application of certain business methods followed by this firm in the last couple of years should have brought it to the place where its appearance is sufficiently inviting and its methods so effective that a good business has been developed.

The windows of the premises are always well dressed, giving expression to seasonal tendencies in the buying of plumbing and heating equipment as far as this is possible. Every helpful suggestion is applied by this firm, such, for instance, as the display which is illustrated in this article, and which was suggested in an issue of Sanitary Engineer at Christmas. The firm keep an open mind for such suggestions and investigate them as they apply to their particular trade.

The interior consists of a neatly arranged showroom and office. The accounting system and general methods of direction are modern and efficient and have been one of the chief foundations of its success.

Direct Contact With Public

Because direct contact with the public can be achieved through the window display, every care is taken to make it not only attractive but interesting. Prospective customers are invited by the window display to come inside. Here through courtesy and intelligent treatment on the part of salesmen many profitable sales are developed. Thus the window display not only advertises the goods and sells some of them direct, but it enables the merchant plumber to come into close contact with prospects.

A few weeks ago realizing the need of bathroom fittings in the home, a

supply was purchased and put on display. Within two weeks half the quantity purchased was sold and in some cases it was necessary to re-order certain lines. In view of the fact that these fittings had not been stocked for eight years and that customers had been turned away to go elsewhere, the wonderful possibilities of window displays and advertising are evident.

The prospects brought to the store in this way made many enquiries for enamelled ware and several profitable sales resulted. The display of such ware caused such an impression that one lady remarked, "It is a good thing to see something so new and attractive in a plumbing store." This, Mr. Cole says, only goes to show that the public are noticing the transition which is taking

place in the appearance of plumbing shops since the arrival of the modern domestic sanitary and heating engineer.

Use Prospect List

Prospect lists are compiled with care, divided into the various types of equipment in which the person is interested, and these are followed up vigorously. With a live mailing list available some direct influence of an important character is brought to bear on all special efforts put forward to sell equipment.

In the management of the business the same care is shown as is exhibited in the window and its showroom. The office is neat and well arranged. An extensive system of accounting is kept and audited monthly.

Efficiency and good management keep down the costs and increase the profits.

Separate Bins

In the workshop everything is in order and well marked. Every article is kept in a separate bin and everything arranged with the underlying idea of saving time and money. Everything is where it can be found quickly. The saving annually both in time and material can be reckoned in many dollars, according to Mr. Cole.

Use Speed Truck

Repairs are attended to promptly and a speed truck is always ready to transport men and material rapidly to and from each job.

The experience of this firm bears out that of other sanitary engineers, namely, that a speedy service is necessary to secure emergency repair work in various parts of a city such as Ottawa, and that the use of such a truck keeps the time spent on such repairs to a minimum. It is only by keeping time and expense to such a minimum this work can be made profitable. Ordinarily the customer is reluctant to pay the plumber to do a comparatively small job in the house, judging the job not by the time



W. CECIL COLE

of the plumbing firm of Band & Cole, Ottawa, Ont., who tells of some helpful and interesting business building plans for plumbers.



Making use of all helpful ideas for the window display, to maintain constant contact with the public, Band & Cole, Ottawa, Ont., made use of the window display suggestion for a Christmas tree of bathroom fittings, which appeared in Sanitary Engineer. The idea was a success. Note the arrangement of other bathroom fittings, radiator humidifiers, sinks, laundry tubs, etc. A timely appeal is conveyed as far as possible in the constantly changing displays of this firm. Read what tangible results have been traced to these windows.

consumed but by the value of material used. The speed truck used by Band & Cole has developed an active business in such work and it is made profitable.

Handling Overdue Accounts

Accounts are handled efficiently and with little cost. When an account is two months overdue the customer receives a letter requesting payment in a courteous way and these letters are continued each month until the account is paid or placed in a doubtful class. These letters are written in good faith and are written in such a manner as to give no offense. They not only drive in the money but they retain the goodwill of the customer. In this way collections are handled promptly and with little expense and the maintenance cost kept very low.

"Gradually the merchant plumber is coming into his own," said Mr. Cole, "and the plumber and steamfitter into his rightful place as a domestic sanitary and heating engineer. Soon the plumbing and heating industry will be universally recognized as an industry which renders one of the greatest services to mankind, that of providing the best in sanitary heating, and ventilation, so that the peoples of the universe may enjoy the greatest of all gifts—health and comfort."

Plumber Develops Filter Business

N. C. McGowan, Plumbers of St. John, N.B., Conducts Propaganda Work With Boards of Health to Have Filters Installed in Swimming Pools

ST JOHN, N. B.—N. C. McGowan, plumbing contractor of the St. John N. B., had been advocating action whereby the plumbing contractors in each city and town would benefit materially. Mr. McGowan states there is at least one swimming pool in each city and town, and during the warm weather months there are sunken scows, wharves, bath houses, beaches, flats, etc., devoted to bathing.

There are pools which are as yet not equipped with filtration apparatus and Mr. McGowan believes that if the plumbing contractors went after the owners of these pools diligently and sought the orders for installation of filtration systems, the owners would have the filters installed. He believes that many of the owners think the cost is much larger than it really is and consequently have failed to install the filtration systems in connection with pools. Mr. McGowan believes that the Boards of Health in the cities and towns and districts should forbid the using of pools containing unfiltered water owing to the prevalence

of germs in such water, particularly after being in use several days or a week or perhaps two weeks.

Then there is the question of the sunken scows, and the swimming beaches etc. Mr. McGowan points out that in many instances the water for these places is impure, and is often near sewage pipes. Mr. McGowan argues that the plumbing contractors should petition the city councils in the different cities and towns agitating purification of the water for these public bathing places. He advocates the installation of spray to be installed by plumbing firms, and which would minimize the menace of the germs in open waters.

Mr. McGowan has been doing some propaganda work on behalf of his people, and has taken up on his own account, the circularizing of owners of unfiltered swimming pools, and offering to install pools at stipulated figures. He has received one order already and considers himself repaid without going any farther, for his work in advancing his projects.

A \$200 Home Water Plant Sells Additional Equipment to the Value of \$400

Two Types of Power Pumps, i.e., Deep Well and Shallow Well
—The Elevated Tank and Pneumatic Pressure Tank—Small
Tanks Should be Galvanized—What to Look for in Good System

Written for Sanitary Engineer by J. W. McCammon, Manager Pump and Electrical
Dept., Canadian Fairbanks-Morse Co., Montreal

THE extension of hydro-electric distributing systems through the country and the improved design and quantity production of gasoline engines, have within recent years placed a power operated water system within the reach of almost every householder in districts where municipal systems or gravity supplies are not available.

The wide distribution of mechanical and electrical equipment in the form of gasoline engines, home lighting plants, automobiles, electric motors, etc., has familiarized the public with the use of apparatus and has clearly demonstrated the convenience, economy and comfort to be obtained by its use.

There is no single piece of mechanical or electrical apparatus which is as necessary to life, health and happiness as a good pumping equipment, one which at all times will give a clean, convenient and reliable supply of water.

Sells Other Equipment

Millions of dollars have to be spent in building up huge selling organizations for the sale and distribution of gasoline engines and automobiles. An equal distribution of water systems may be made without any costly distributing system, but through a country-wide organization which already exists. Do plumbing and heating engineers realize the possibilities of this business, that with one-half the effort required to sell an automobile or an engine, they could instal a water system and all that goes with it, complete bathroom equipment, modern kitchen plumbing, etc., and that every house needs these much more than it does a car? It has been proved by plumbing engineers who have kept careful records, that with every \$200.00 home water plant sold by them, they have sold additional equipment amounting to \$400.00.

With this vast field for new business there is every reason why plumbing and heating engineers should take advantage of it, especially as it requires no additional capital in the form of money. Energy, and a little intelligent thought and study are all that are required.

Experience indicates that in the past a great many pumping equipments have been sold which have not given satisfactory results. A knowledge of the different types of equipments, their application and limitations, will ensure satisfaction to both purchaser and seller.

There are in general two types of power pumps:

- (a) Shallow Well.
- (b) Deep Well.

(a) Shallow well pumping units are for use where the water level of the source of supply is not more than 20 feet vertically below the ground level at the point where the pump is to be installed, i.e., the pump must be located not more than 20 feet above the water level of the source, whether it be a well, lake, cistern, spring or river. The horizontal distance of the pump from the source of supply is another consideration, most especially where the suction is high, i.e., nearly 20 feet. It is desirable that pumps should be located as near to the source of supply as possible. If it is not possible to place the pump near the source, the size of the suction pipe should be large, i.e., larger than the suction connection of the pump. In extreme cases where the suction lift is over 18 ft. and the horizontal distance greater than 100 ft., reference should be made to the manufacturer for recommendation as to size of suction pipe to be used. Ninety-five per cent of pump troubles are due to improperly installed suction lines as follows:

- (1) Suction lift too high (over 20 ft.)
- (2) Suction line too small.
- (3) Suction line leaks air.
- (4) Suction line contains air pockets.
- (5) Leaky or defective foot valve.

(b) Deep well pumping units are used where the source of supply is a well either dug or drilled, where the surface of the water is more than 20 ft. below the ground level. With this type of equipment the pump cylinder is placed below the ground and usually below the water surface. The cylinder is then connected to the pump head by means of a drop pipe and a pump rod. Where this type of pump has to be used there are so many varying conditions such as:

- (1) Depth of water below surface.
- (2) Diameter of well,

that standard equipments are not made and each individual case should be referred to the manufacturer.

Storage and distributing systems are of two kinds:

- (1) Elevated tank.
- (2) Pneumatic pressure tank.

Elevated Tank

The elevated tank has in the past been the favored system and in some instances is desirable.

Primarily, it is cheap, and presents no unfamiliar details. As a general rule storage tanks have to be located in attics where they place unexpected loads on house timbers. They are liable to overflow and destroy ceilings and walls and the available head over faucets, etc., on the top floors is generally low, giving poor flow and very often complete stoppage due to air pockets and slight obstruction in pipe lines.

The pneumatic pressure tank system gets away from all these troubles. The tank may be placed in the basement, a good pressure can always be maintained and a constant supply of freshly aerated water is always at hand. This system lends itself very readily to automatic control. If a reliable source of electric power is available a small storage tank may be used giving a more nearly constant pressure and water will always be fresh. This system is the one which is commonly used to-day and will in a very short time almost entirely replace the older elevated tank system.

How it Operates

The system of operation is simply the pumping of air and water into a closed tank. The air being lighter than the water, rises to the top of the tank. As the tank fills, the air pressure on top of the water increases usually to 40—50 lbs. per square inch, when pumping is stopped either by means of an automatic stop or by an attendant by hand. A pressure of 40 lbs. per square inch is sufficient to raise water to a vertical height of approximately 92 feet. As water is drawn from the bottom of the tank and forced by air pressure to the points desired, the air expands and continues to exert a steadily decreasing pressure on the water. It is usually arranged that pumping should commence again when the pressure has reached a minimum of from 20 to 25 lbs. per square inch. This again is controlled in the case of electrically operated units by the automatic switch, or when hand operated or engine driven units are used is manually controlled.

The air supply is provided for either by a shifting valve placed in one end of the pump cylinder or in the case of deep well units by an air compressor attached to the pumping head or a separate air compressor.

(Continued on page 28)



"We Launch a Prodigious Publicity Campaign"

(With apologies to Ring W. Lardner)
By

MAJOR L.L. ANTHERS.

MANAGING DIRECTOR-ANTHERS FOUNDRY LTD.

Tarraboome, Ont.
Feb. 15, 1923

Dear Friend Al:-

THIS sellin gaim is a hot 1. I intymaited in my last affusion that we had lawunched a prudigeous publicity campane. The replize to our overatures were numerous.

Some of theeze hear hicks along the back concessn. lions has got a hide like dubble plie oke-tannd beltin, & the passage-weigh to there pance-pokets is stitted with binder-twein—likewise there bank a cs.

Praps I never tolde you ov a job we done for an old ginney named Si Ensilage. Si was 1 of theze hear guys what had wiskers like a weapin willer—youda sworre that they was birdes nests into em.

Fer menny yearze Si had strugeled with the olde fambly washtubb on Sat. nites. 1 nite he backed up into a hot stove in his bearskin burnin a hoal in his etc. & coodent set down fer weex. Laiteron he set in a tubb of bilin water another nite & cot pheumony. After that Old Si was off washtubz fer life. He sent fer Bill 1 day wile he was converlessin & Bill put him in 1 of the swelest jobs in theze partz. Ever since Si hez bin a boostter fer our firm & moar than 1 rural installn. can bee trased to hiz ko-operation.

Theirs annuther old hayseed naimed Si Low who livz abt. 1 ml. from Old Si & whooz so tite that he wares his wiskers fer a nek-tye. Hees lowzy with pelf but its abt. as eezy to get a \$1 bill away from him as it is to get otter of rozes frm. a biled onyon.

Well hee & Si ust 2 bee the kloset of frends in moar weighs than 1. Of coarse wen Old Si got in his plumbing fixtrs. & etc. the other Si (who I will

spell Sigh to extinguish him from Old Si) was 1 of the 1st to call on his old side-kick to look ova the noo trimmins. Old Si was so gosh-derned proud of hiz plumbing that he spent moast of hiz time at nites shown visiters arnd. the hous. 1 Sat. nite his nayber Sigh turnd up with a towl & ast Old Si if heed mind him takin a bath. "Shure," sez Old Si, "go ahead."

Sigh went ahead allrite & the saim the nxt Sat. nite & sew on fer a cupple of mnths.

Finely it got Old Si's gote, & he infurred to Sigh that anuff was 2 much & in futr. he cld. bi a bath ov hiz oan.

Thus 1 of the cloasest of frendshps. on reckered was bust up on a/c Old Si had got tirde of runneing a publik bathing resorte.

On diff. occasns. after that we had seen this old hick Sigh snoopin arnd. our show windy but if he seen any 1 lookin at him he hiked off like a dawg wat was expectin a kik.

"Theirs a prospeck," sez Bill 1 day as we seen Sigh peekin arnd. the corner of the windy.

"Think so," sez I but withoute convictn.

"He admitt heel bee a harrd 1," continyers Bill, "but its worth tryin."

"Go ahead," I retalyiated, "you hev my best whishes."

"Why not trie it yerselff," come back Bill not lookin me in the i.

"Yoove hed moar xperiance with hiks—look wot you dun with Old Si," I venchered seein as neether ov us was kean fer the onner.

Vilet beginn to hum the corus from "Hee Never Cairns to Wawnder Frm. His Oan Fierside."

I feltt sorta giltie like & I sez to Bill; "I tel you wat weal doo—weal tos as to hoo takles Sigh." I perduced a coyne & spunn it in the airr, sayin at the saime time, "Tales I winn heds you looze."

"No you dont," sez Bill, "weal match."

So I come to him & then he come to me but the lastt time I didnt come so I was alected the gote to put ovar the deal.

But Ime gain wen I get my bak to the wal—you know me Al.

Sew 1 fine starrlite nite I mounted the old lizzie & hoofed it over to Sighs hoam on the 4th concessn. It was set up on a hill & was a fien sustanchial lookin brick abroad. It was 1 of the best farms in this sectn. bein wel draned & good riche land. Their was a big up-to-dait barn on the plaice & it was ann ideel subjek fer a 1st klass plumbing & heating job.

I had fortyfide miself with sum segars what the smoak testin macheen peeple had sent at Xmas time allso sum chooing gumm in caise Sigh didn. smoak.

I hung arnd. the frunt gait fer a wile like a bachfull luvver as I wernt nun 2 shoor ov my wellcum wen I shld. annonce miself.

Its all verry well to starrt out 2 sell a plumbing outfitt but the pinch is how to brake the eyce wen yer goin to run up agenst a ornery old skinflynt titer nor a turkey—not on a broaken arterie. Wen I got to the gait my enthusiasim begin to meltt away like buter on a hot stoav. I stoode skratching 1 kaff with the tow of the uther tryin to figger out the best lion of doap to pull with the old tiedwadd.

"Hi, wat yer doin their," came a voyce outta the missty twylite.

"Oh good nite," I sez afable like, "Mr. Low I bleeve?"

"Well thats

me weather you bleeve it or not," he snapped like a starvin dawg back of a slotter hous.

"I thowt Ide drop in & sea you," I sez not jest shure what I was sayin.

"Wats yer bizness," he comes back, "I aint buyin no books."

"Oh, Ime not sellin books," I retortures, tryin to think up somethin to say.

"Wot yer got under yer arm," he snaps pointin to my cattalogs as if they was tea n. tea.

"Oh them," I sez effecting an ayr of nonchallons, "O theys cattalogs & desines."

"I aint byin nothin," he sez with an ayr of finelty.

"& Ime not sellin nothin," I shot back quick.

"I jist want to leeve some of theeze kutz with you."

"You kin keep yer kutz," he snarls. "I dont trust peebles wat wants to give you somethin fer nothin."

The situration was gettin tents. He shurr was a kas hardnd. old nutt.



"One nite he backed up into a hot stove in his bearskin and couldn't sit down for a week."

With desperashun I plunged in. "Ime a plumber."

"Ha," snortered the old hogg-herder, "I thot you lookd like a crooke."

"Thems harsh words Maggie," I remarkd with dignitie. "A plumber can bee a gentleman, I hoap."

"Well yed bettr abanddon yer fawlse hoaps," cam the coal-d-bludded sentence like a juddge condemming a wife-murrderar.

I leeve it 2 you Al—it was wurse than tryin to maik a um-pire reverse his decisin.

"Aint you interested in plumbing?" I ast, bringing

Price Cutting Easier than Selling

But Morale of Plumbing Business Has Been Affected by Continuous Price Cutting—An Epidemic of Spinelessology—Bids on a Job Range From \$245 to \$322.50

Written for Sanitary Engineer by Kenneth B. Allison
(Continued from last issue)

DURING the year just closed I have given considerable time to the compilation of figures which would be authentic so that any statements I made would be considered as such, rather than the exaggeration of someone seeking a little cheap notoriety.

We will discuss the plumbing of the average small house and, so that the figures I give here may be intelligently understood by those operators who, in other territories, use different material or a different installation method, I will enumerate the job.

The fixtures are:

1—5-foot enameled iron bath on feet with 3-in. roll rim and fitted with 1½-in. N.P. combination bath waste and overflow of 19 Imp. gauge ¾-in. N.P. brass full iron pipe size supplies for hot and cold water, and N.P. quick compression bath cocks with plain or sometimes indexed handles.

1—Enameled iron flat-back lavatory with apron, 18 in. x 21 in. or approximate in size, having 1¼-in. N.P. 19 Imp. gauge trap—plain P if to wall and vented S if to floor, ¾-in. N.P. brass supplies (unless supplies can be brought out from wall clear up to basin) N.P. quick compression indexed handle basin faucets.

1—Low-down closet combination consisting of wash-down bowl, oak tank with 10-oz. copper lining, also ballcock and syphon; wood strip seat, N.P. brass supply and flush; brass and rubber floor flange and bolts.

1—18 x 30 enameled iron roll rim one-piece sink with back; N.P. quick compression sink bibbs; lead trap.

1 set of 2 division cement laundry trays; cements legs with four compression bibbs.

The soilpipe is medium weight with a three-foot footing and carried up to three feet above any window within twenty feet, flashed at roof with 5-lb. sheet lead at least 20 in. x 20 in.

All fixtures are vented. All lead waste and traps are 8 lb. weight. All vents are galvanized iron pipe and fittings. Water closets are local vented to heated flue. Half-inch lead water service is laid in trench provided from street line to inside front wall of house. Roughing-in is water tested and finished work smoke tested.

What the Job is Worth

This job is worth three hundred and thirty five to three hundred and sixty

dollars of the public's money and there is no overcharge at that figure.

The material alone, closely estimated, will cost an average of two hundred and thirty-five dollars and these figures do not include the little odds and ends, or making good of defects, etc., which in other lines of business are figured at another ten per cent.

They say that there are one-man-working-boss shops who do these jobs in five days, if any of those fellows want a job I will deposit their full year's pay in advance against their regular weekly pay withdrawals and give them a year's contract—that is how much I think of their speed.

But the average run of mechanics take eight to ten days, and I have among this year's figures as high as fifteen days. Take your pick, and add the labour cost on to the material cost and show me howinsamhill a regular honest to goodness operator can meet two hundred and fifty five dollar competition—yes sir, two hundred and fifty five dollars for the job previously enumerated in this article.

Give Customer Donation

It seems to me that it would pay some of you folks to slip your customer

twenty five dollars and tell him that that is your donation towards the building of his house and then beat it for home and spend your time knitting socks.

I have seen material and labour costs of some of these jobs go as high as three hundred and sixty one dollars and sixty five cents (too high I will admit) and I have checked lots of material costs alone which showed up to two hundred and forty six dollars when the incidentals were taken care of.

Recently a block of bungalows brought out over a dozen plumbing bids. These jobs were similar to the previous one mentioned except that there was an enameled sink and laundry tray combination in place of the usual sink in the kitchen and double cement laundry tray in the basement. The combination fixture costs more than the two fixtures separately but there is a saving in the roughing-in labour and material. As one of the craft will you make such adjustment mentally as will take care of this difference and then read here that the prices ranged from three hundred and twenty two dollars and fifty cents down to two hundred and forty five dollars.

Another sad feature is that the fellow with the low price has publicly damned his fellow competitors for being price cutters.

I am afraid to give vent to my feelings because this article would only be thrown out because of foul language, but I can sympathize with the man who becomes an extremist because it seems that only extreme and very drastic action will awaken most folks to conditions.

Have to be Very Ill First

You know a lot of folks have to be dangerously ill before they want to act like Christians and then what a rush they make in case they should croak before they have a chance to show how good they really are.

Nineteen-twenty-two was a good year for business but the morale of the plumbing business was all shot by price-cutting.

Price cutting started with the wholesaler. Let us see why it did not stop there.

The average plumber reasoned it out that if eleven supply dealers had to price-cut below sound business practice then what chance had he, the plumber, with an apparently less efficient, and



Plumbing operators are worse off for price cutting. An Epidemic of Spinelessology.

naturally smaller organization, to get business in say, the city of Toronto, with some three hundred and fifty competitors on the trail, any one of whom might become competition with or without notice.

Because of price cutting, wholesalers require about 3.5 per cent. of their overhead to pay interest charges due in large measure to slow payment accounts.

A manufacturer sells his product to the trade at a certain discount off of a list and from this discount he allows one additional discount to the wholesaler so that he, the manufacturer, may have a greater number of distributing points, a greater number of salesmen, and therefore increased output by means of these wholesale house connections.

The problem rests right at home with you. It is for you as a business man to say, that, having realized the preferential you have is not any too great, you cannot afford, nor will you ever consider, having to part with it.

Almost daily does the question come to my mind—"What is your position as a human being in life?"

What is Your Duty?

What is your duty to your fellow beings? What is expected of you if you are to do your part towards the progression of the world, or of your country or your city, or of your calling or your own business, or of your own family, or of yourself?

Perhaps the Big Brother movement, or the Big Sister movement, or the development of the under-privileged boy has had its good effect in awakening one to their position in life.

If, as an ordinary human being, certain things become my duty then logically those same things should become the duty of the other ordinary human beings.

Perhaps in the past we have taken our own duty too lightly, have taken things for granted and have failed to do our duty in the past by not giving our efforts toward the development of others.

I am in business. A customer calls on me to do a piece of work. My interest therein is not one simply of satisfying the need of the moment, charging an amount that returns me a profit and collecting my money.

There is more to this problem of progressive living than barter and exchange. I think that it is essential that, when someone wants to become a debtor of mine, that I should be satisfied that they are able to fulfill in all particulars their part of the agreement, either written or implied. I think too that when I want to become a creditor of theirs that they are entitled to the same knowledge as to my ability to complete in all detail my portion of that agreement.

It appears almost self evident that in addition to one being sure of their debt-

ors they must be equally sure of their creditors.

A Retrogression

The failure of a master plumber or the failure of a supply house is a retrogression to the whole industry. Whatever the financial loss is that is incurred in those failures, it must be saddled on as an extra burden to those who are left.

I and you, whether we be supply dealers or plumbing operators, are vitally interested in the success of each one connected in the industry, and I and you as buyers are entitled to know that the concern or concerns with whom we deal are making a profit and making progress as a result of our buying else, as they cannot remain stationary, they must be incurring a loss and a loss to anyone

in the industry is a loss to every one else in the industry.

Is it possible therefore for me to pray, beseech, exhort, chastise, or blaspheme those connected with this industry to take stock right now, not alone of the ware on their shelves but, of their business good-will and of themselves as human beings that they may find out if they have progressed during the year just passed and are therefore an asset to the community, or if, in sheer stupidity and insanity they have, by price cutting, helped to wreck an industry and become worse than dead stock to the community?

Let us see ahead, and plan, and act to avoid future difficulties rather than later on becoming an indignation committee when the holocaust is over.

THE QUESTION BOX

USE OF GENERATOR

Question.—Please advise if the Honeywell generator is still on the market or are other generators on the market. Do they improve hot water systems and are many of them used? Which is the best hot water system and cheapest to instal? The old gravity 2 pipe system with separate flow and separate return pipes for the ground floor or the so-called Honeywell small pipe system with generator? Which will heat up first and which requires least fuel?

Moist Air Furnace Co., Ltd., Ottawa.

Answer.—Your letter of Jan. 29th contains some very interesting questions and to answer these we will refer to your letter paragraph by paragraph.

1st. The Honeywell heat generator is still on the market to the best of our knowledge. The firm still conducts an establishment at Wabash, Indiana. Our records of many years ago tell us that you installed quite a lot of Honeywell systems in Ottawa. Hence we would assume that you were closer in touch with the pros and cons than we are, but we believe that the accelerated systems of hot water heating is much preferable than the "Old 2 pipe gravity jobs."

2nd and 3rd. As there are scores of methods that can be adopted in the installation of hot water heating all of which are good according to prevailing conditions we would not care to express our opinion as to which system is the best.

4th. There isn't any doubt about the fact that an accelerated system creates a more active circulation, and under efficient management will give off a larger amount of heat per lb. of coal consumed. But unless care is exercised in installing any hot water job there is likely to be trouble

HOW TO CLEAN SHOPSOILED VALVES

Editor, Sanitary Engineer: We have just finished taking an inventory of our stock and other worldly goods, part of which are a lot of new brass valves, checks, brass fittings and supplies of various kinds.

These goods have never been used, yet do not look just as good from consumer's standpoint. Is there any way to clean these goods up so as to give them the freshness they had when we bought them? We have tried washing them and using polishing powders and other cleaning fluids, but all to no purpose, that is, the goods do not have the appearance we would like them to have. (Signed) Shop Soiled Brass Goods.

Replying to the above question re cleaning brass valves, etc., would say that this can easily be done. One or two precautions must be taken. Be sure and remove all valve discs, all packing; loosen up and take apart every piece, for the simple reason that some of the acids, mentioned below, are liable to get into crevices in the valves and not easily drain out. This would set up corrosion and likely damage the interior parts.

The following dips and solutions will give the desired results:

Having taken goods apart, attach wire or hooks to same, then immerse in boiling hot water, containing caustic soda, about one pound a gallon. Then dip in clean hot water, and repeat these operations once or twice. This will remove the grease. Next, make up a solution of 4 parts hot water, 2 parts nitric acid and 1 part Salammoniac. Leave goods in for a few moments, then take out and dip in hot, clean water. While the goods are hot rub well in box of fine sawdust until dry.

Rural Sewage Disposal Systems

Water Allowance Per Person—Its Importance—How Figures Were Determined—Danger in Making Allowance Too Great—Water Not to be Conserved at the Cost of Cleanliness—Why Cultivating Chamber Requires to be Larger Than Dosing Chamber

Written for Sanitary Engineer by Edwin Newsome, Consulting Sanitary and Heating Engineer

THE concluding paragraphs of the article which appeared in the January 15th issue of the Sanitary Engineer referred to the water allowance per person, occupying a house. Where a septic tank and disposal field tile area is in operation, and, realizing that the quantity of water being discharged with a septic tank is important and particularly seeing that where a septic tank is installed, the water allowance has a most important bearing upon the proper workings of it, the readers require to have no misgiving as to why the figures given in previous articles were used as a basis upon which to determine the size of a septic tank.

For example, all the drawings, both plans and elevations were drawn and prepared, and sizes given in such plans, were based upon a water allowance per day of 27 gallons per person. The writer has many times had these figures questioned. By some the allowance was said to be too low, by others too high, and while it was stated that when certain types of water supply systems were in operation, the allowance could be reduced. Yet the figures given were ar-

rived at after many practical experiences and much research work being conducted.

It is not necessary to quote more than a few instances to prove the figures previously given and to assure the reader that those figures are reliable and worthy of consideration and confidence.

Proving the Figures

In one city for example, a very careful survey was made of 2,553 families, the total number of persons numbered 12,765 living in the houses, each house was metered and every gallon of water was accounted for which passed through the meters. That is, no flat rates or certain bulk allowances made for certain periods of the year, but each meter was set at zero and every gallon counted in.

It will be noted that the figures show that the total number, 12,765, works out at an average of 5 persons per family, and, by the way these people resided in various part of the city. Some in high class and wealthy residential districts. Some in middle class districts and some in the poor localities of the city. The work of measuring this water was spread

over a period of one year exactly, and the figures are astounding.

167 families used only 6.15 gallons per person per day.

237 families used only 8.20 gallons per person per day.

361 families only used 10.25 gallons per person per day.

445 families used only 12.30 gallons per person per day.

446 families used only 14.35 gallons per person per day.

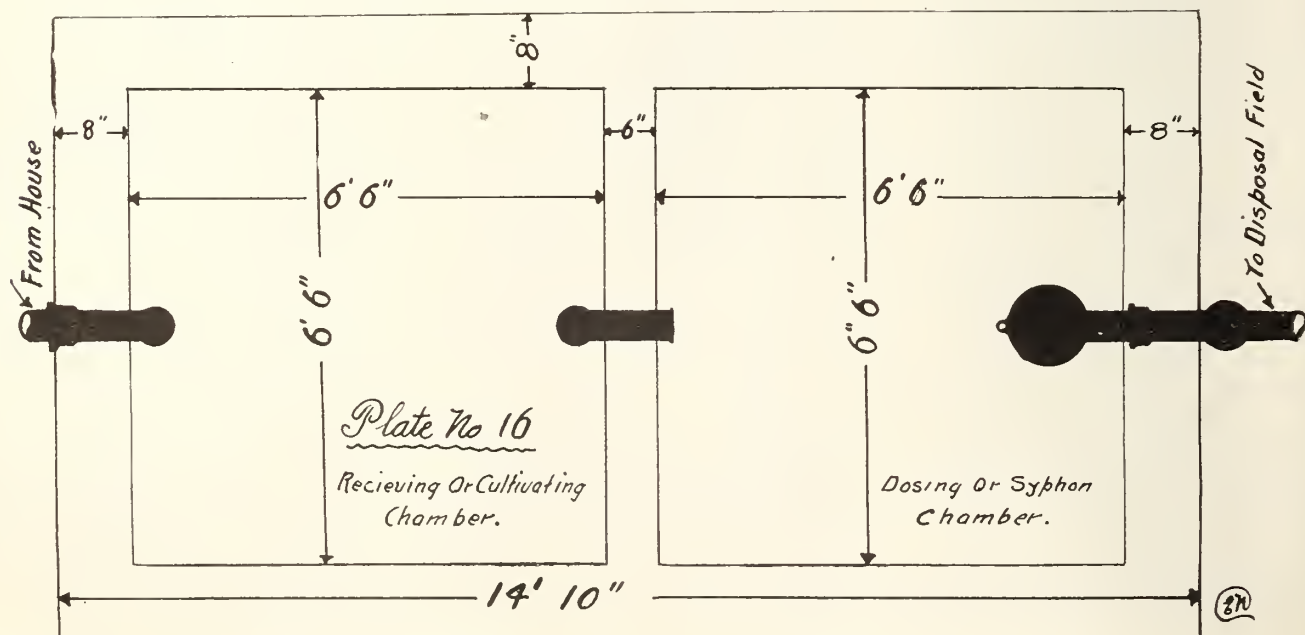
462 families only used 16.40 gallons per person per day.

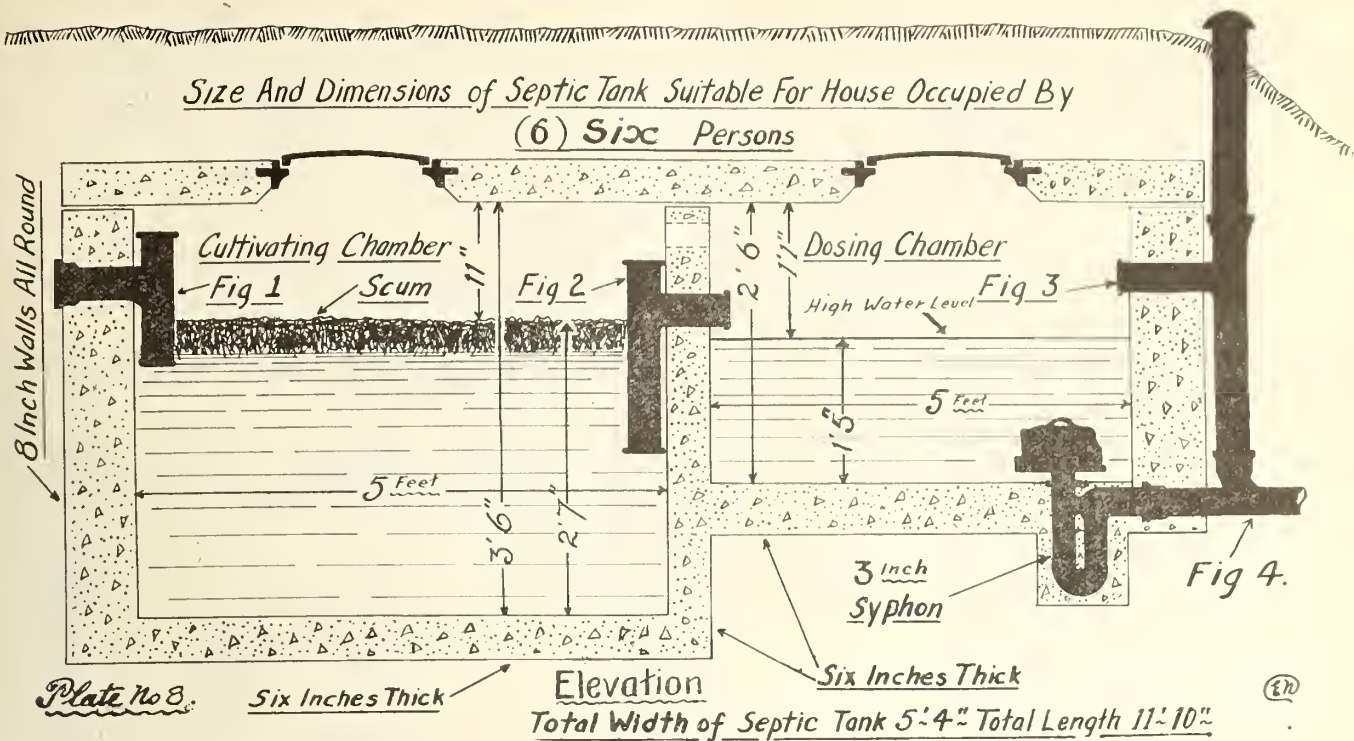
435 families only used 18.27 gallons per person per day.

Those figures work out at about 12½ to 13 gallons of water per person per day. But there is another condition to be considered which will justify the allowance of 27 gallons per person per day which the writer advises.

The average city dweller takes advantage of sanitary laundries, people living in a rural district do not patronize outside laundries to the same extent. The average city dweller works away from home, in offices, factories, etc., etc., and the daily consumption would likely have

Plan With Size Of Septic Tank Suitable For House Occupied By Twelve (12) Persons.





been somewhat greater, if living conditions were similar to rural or farm life. The average person living in a city takes a wash several times a day, and so will a farmer, or his folk, if water is on tap 24 hours a day. But the water not consumed or otherwise used at home by a city dweller would not be taken into consideration as would have to be in the case of the farmer, so that to add 50 per cent. or so as the allowance for a rural home would not be out of the way.

A Case in Point

Another proof that our figures can be taken as a reliable basis upon which to determine the size and other details for a septic tank may be cited in the case of a house occupied by a friend of the writers. The water supply is metered, an allowance of 1,666 cubic feet of water is made for a period of six months and over and above that amount is charged for at so much per 1000 cubic feet. By working out these figures it was found that the normal allowance of 1,666 cubic feet of water per six months, gave each person about $7\frac{1}{2}$ gallons per day per person. The house is occupied by 8 persons.

But during the months of June to November inclusive, the total consumption for that family was actually 4,998 cubic feet, so it will be noted that the daily amount of water used for all purposes, worked out at approximately 23 gallons per person. During the 6 winter months, December to May, both months inclusive, the consumption of water dropped down to approximately 15 gallons per person per day. This family however has access to outside laundry work and very little family washing is done.

The writer found upon investigation that these figures given above were ap-

proximately correct for the whole town, so that it can be plainly seen that they are reliable and can be used as a fair basis upon which to arrive at the size of a septic tank. That is why we find the allowance of 27 gallons per person per day to be fair.

Too Great an Allowance Dangerous

And now to consider what would take place if too great an allowance of water is made when arriving at the size of any septic tank.

Let us assume that provisions have been made to take care of an allowance of 50 gallons of water per person per day and again let us assume that six persons are going to occupy the house. The first mistake would be the unnecessary cost of the installation, but this, by no means is the most serious, a dosing chamber, in which a syphon is fitted would require to discharge the full allowance of 300 gallons every 24 hours and 600 lineal feet of field tile would have to be provided, thus also requiring a larger area in which to lay the pipe.

Next, if a system such as mentioned only received say 27 gallons of fluid per person per day. It would not operate much more frequently than once in every 45 hours or so instead of every 24 hours. Therefore the sewage would be held back too long a period in the cultivating chamber and the bacteria, not having sufficient new raw sewage solids to work upon, would become languid as it were, lose life and finally become putrid, a condition to be avoided by all means.

And almost the same condition would take place in the disposal field piping. In the summer there would not be sufficient moisture to keep the bacteria in a healthy state, and in the winter this con-

dition would lead to trouble from freezing, because, the frequent, predetermined, intermittent discharge of sewage keeps the tile area warm and free from frost and there are just as many arguments against a system being too small for the allowance made.

Disposal Systems Made Too Small

The above reasons quoted against too large an allowance of water are no more important than would be the case where too small allowance is provided. For example we find that 27 gallons per person per day is advisable and say only 15 gallons were provided along with a septic tank and disposal area. Say also that 6 persons are to occupy the house. Here is what we find, the total amount of water actually used is 162 gallons, requiring 324 lineal feet of 4 inch field tile, and the septic tank is only large enough to handle 90 gallons of fluid per day, the field tile 180 lineal feet, and, let us assume too that the ground is inclined to be clay loam, the syphon will discharge nearly twice every 24 hours. The bacteria in the cultivating chamber will have no opportunity to break down the solids and the effluent entering the dosing chamber will contain too much solid matter in suspension.

Not only will the disposal bed be overworked, but the field tile will very soon be filled up with partially broken down solids resulting in a very undesirable condition as well as unsanitary.

The reader must not, however, be of the opinion that water must be conserved at the expense of cleanliness. That is the last thought which the writer has in mind. But seeing that such a lot of work has been done in this connection,

(Continued on page 36)

Rating of Furnaces Must be Based on Register Temperature as Well as Leader Pipe Area

Professor Willard Makes It Plain Why the Latter is Not a Safe Guide as to Furnace Capacity

By A. C. Willard, Professor of Heating and Ventilation and Head of Department of Mechanical Engineering, University of Illinois

ONE of the most important objects of the research work of the Warm Air Furnace Heating Investigation, which is now in progress at the University of Illinois, has been the determination of the factors affecting the rating of a warm air furnace. Every manufacturer is vitally concerned with the basis upon which furnace ratings are determined. Most manufacturers are agreed that the square inches of leader pipe area which a furnace can supply is a satisfactory basis for expressing the heating capacity of a furnace. Unfortunately, this is not the end of the story by any means, as such a basis of rating is still indefinite, unless the air temperature at the registers is also stated.

The real significance of this air temperature at the registers can be shown very easily by reference to any series of tests run at the University on piped furnaces. In fact, it is a very simple matter to show that a given furnace, connected to a given system of leaders, stacks, and registers as shown in Figure 1 can be made to develop several different heating capacities when operating with the same number of square inches of leader pipe area. It is only necessary to increase the draft, thereby burning more coal per square foot, of grate, and as a consequence secure a higher air temperature at the register face. That the heating capacity of the furnace will be increased by such a procedure is obvious to anyone, and it should be equally obvious that any attempt to express the rating of a furnace in square inches of leader pipe area means nothing unless the register temperature is stated at the same time.

In order to illustrate just how important this item of air temperature at the registers really is, the results of three tests on the piped furnace plant (Figure 1) are presented in Figure 2 and analyzed. Absolutely no changes were made in the furnace or plant during these tests. In the right hand half of the figure each inclined line represents one test; the lowest line shows the results from a test with the air temperatures at the registers for the three floors averaging 141.2 deg. F., the middle line is taken from a test with an average register temperature of 175.8 deg. F., and the upper line represents the results of a test with an average register temperature of 197.5 deg. F. The

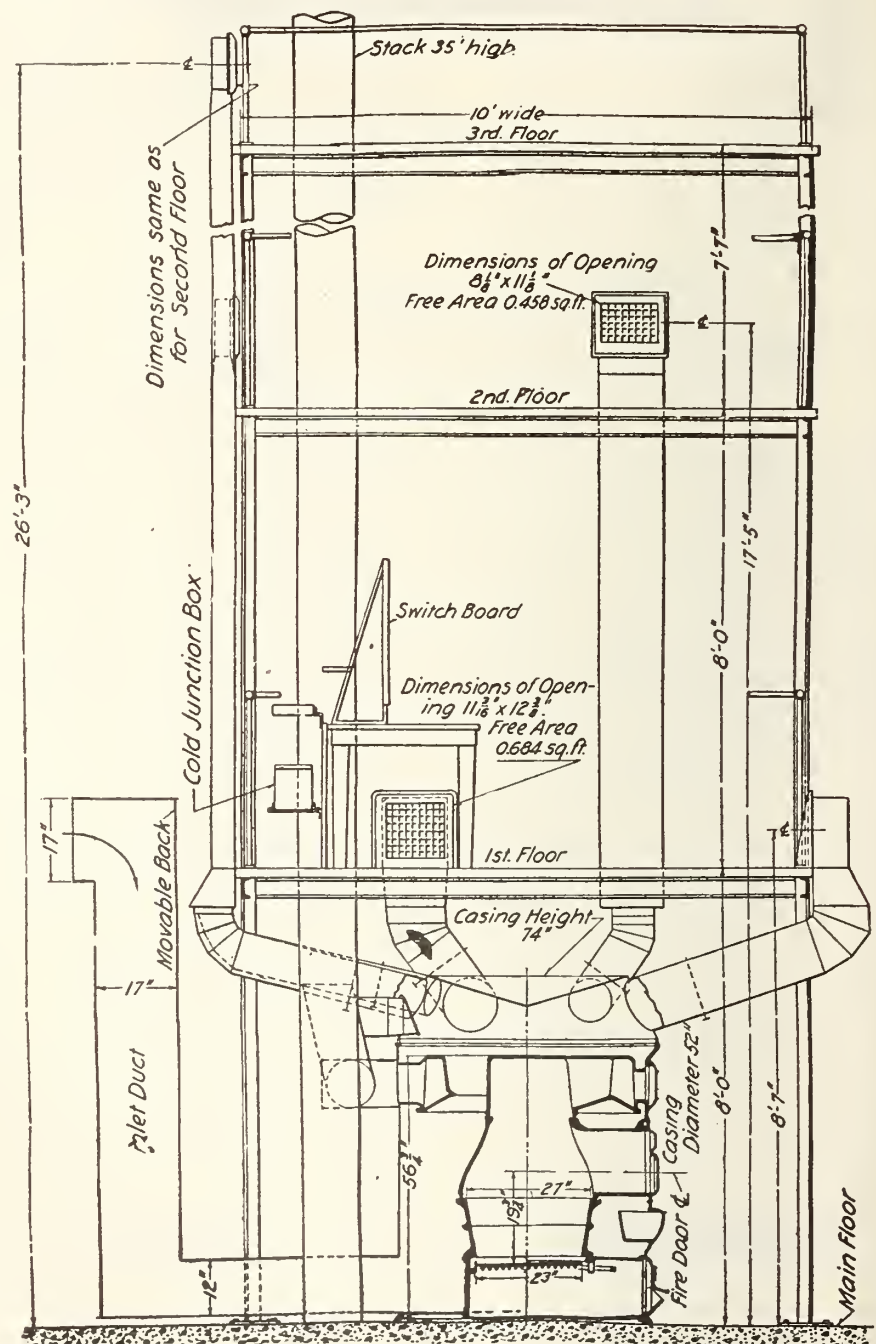


Figure 1—Sectional Elevation of Piped Furnace Testing Plant.

horizontal axis indicates the height of the register above the grate in feet, and the vertical axis gives the heating effect

produced in the room per square inch of leader pipe area.

For example, during the first or low

temperature test, each square inch of leader pipe to the first floor registers supplied 50 B. t. u. per hour for useful heating effect in the rooms, each square inch of leader pipe to second floor registers supplied 89 B. t. u. per hour for useful heating effect in the rooms, and each square inch of leader pipe to third floor registers supplied 122 B. t. u. per hour for useful heating effect in the rooms. At this time the draft was 0.05 inches of water and the combustion rate was 3.8 pounds of coal per square foot of grate.

By merely increasing the draft to 0.14 inches of water, the combustion rate in the second test increased to 5.6 pounds of coal per square foot of grate and the average air temperatures at the registers became 175.8 deg. F. This raised the useful heat carrying capacity of each square inch of leader pipe for the first floor from 50 to 103 B. t. u. per hour, for the second floor from 89 to 153 B. t. u. per hour, and for the third floor from 122 to 204 B. t. u. per hour. A further increase of the draft to 0.61 inches of water gave a still higher combustion rate of 6.5 pounds per square foot of grate and correspondingly greater heat carrying capacities for each square inch of leader as shown in the upper curve of the right hand half of Figure 2.

The left hand half of Figure 2 shows the air velocities in the leaders to each floor for each test. A glance at the curves (each curve represents one test) will show that the velocity and hence the quantity of air delivered was materially increased each time the register temperature was increased, hence an increase in register temperature not only adds

more heat to each pound of air supplied at the registers, but also increases the number of pounds of the hotter air which is supplied. In all cases the leader area was the same.

It is also possible to determine exactly just what effect the changes in air temperature at the registers has had on the heating capacity of this furnace and plant. The first floor leader area is $4 \times 113 = 452$ square inches, the second floor leader area is $2 \times 50 + 2 \times 64 = 228$ square inches, and the third floor leaders area is $2 \times 64 = 128$ square inches, or a total of 808 square inches. The free area of the furnace is 838.4 square inches. Hence this furnace developed the following useful heating capacities (that is, heat supplied at registers for heating rooms at 70 deg. F.) in each of the three tests:

Test Number 1.

Register temperature = 141.2 deg. F.
(Draft = 0.05 inches and combustion rate = 3.8 pounds per square foot of grates.)

$$\begin{aligned} 452 \times 50 &= 22,600 \\ 228 \times 89 &= 20,300 \\ 128 \times 122 &= 15,600 \end{aligned}$$

58,500 B. t. u. per hour

Test Number 2.

Register temperature = 175.8 deg. F.
(Draft = 0.14 inches and combustion rate = 5.6 pounds per square foot of grate.)

$$\begin{aligned} 452 \times 103 &= 46,600 \\ 228 \times 153 &= 34,900 \\ 128 \times 204 &= 26,100 \end{aligned}$$

107,600 B. t. u. per hour

Test Number 3.

Register temperature = 197.5 deg. F.
(Draft = 0.16 inches and combustion rate = 6.5 pounds per square foot of grate.)

$$\begin{aligned} 452 \times 134 &= 60,500 \\ 228 \times 168 &= 38,400 \\ 128 \times 243 &= 31,000 \end{aligned}$$

130,000 B. t. u. per hour

By merely increasing the draft and combustion rate the register temperature rate has been raised from 141.2 deg. to 197.5 deg. F., and the heat capacity has been increased from 58,500 to 130,000 B. t. u. per hour, or an increase of 122 per cent., but the free area through the furnace and the leader pipe area has remained the same.

It should, therefore, be apparent that the rating of any furnace in square inches of leader pipe area means nothing unless the air temperature at the registers is also definitely stated at the same time. The preceding discussion is in no sense an agreement against rating on the free air basis, but rather an argument to show the manufacturer and installer the vital importance of fixing upon some standard register temperature, so that ratings in square inches of leader pipe area will be definite and can be made comparable and understandable by both the manufacturer and the engineer. The Advisory Committee on Furnace Research of the National Warm Air Heating and Ventilating Association has recently approved a maximum register temperature of 180 deg. F. for warm air furnace heating systems.

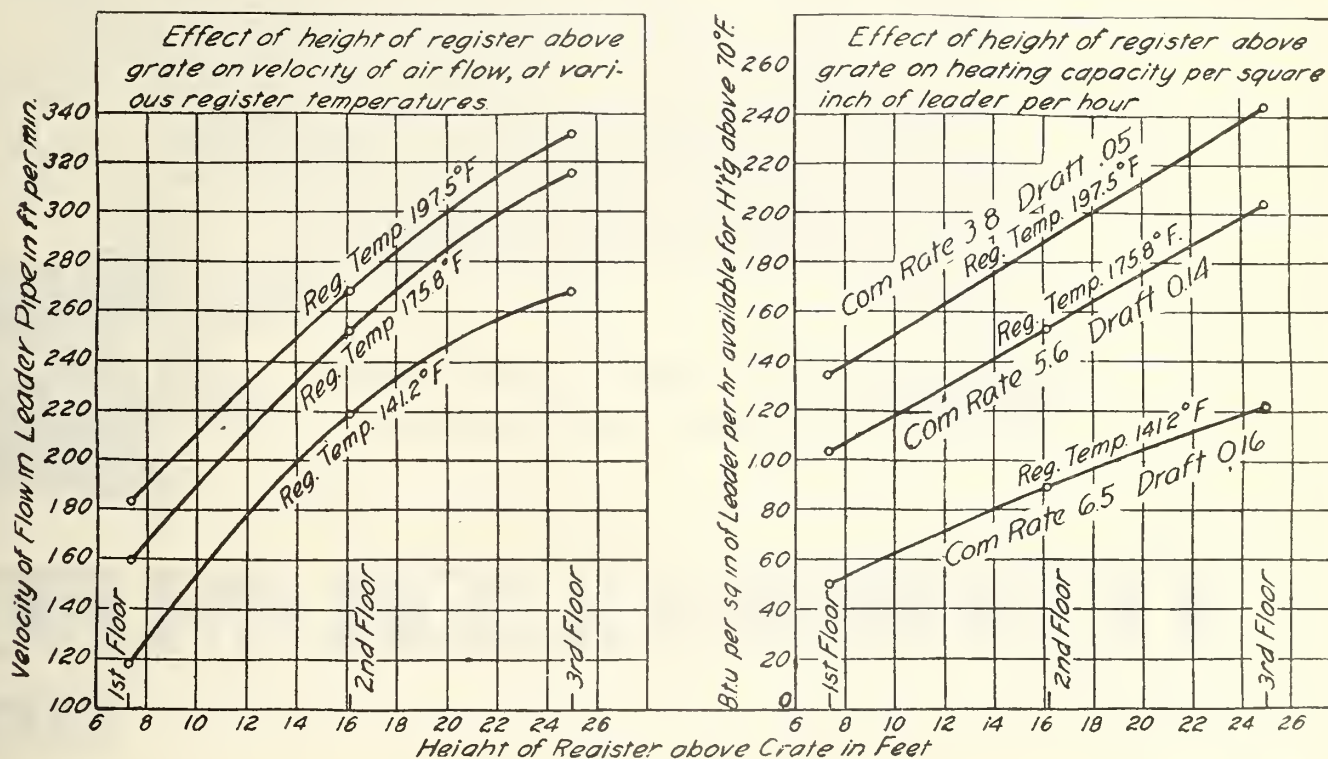
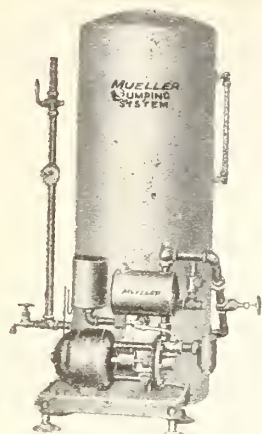


Figure 2—Charts Showing Effect of Height Above Grate Upon Velocity of Air Flow and Heating Capacity.



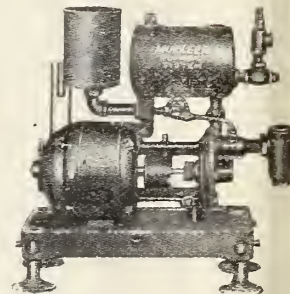
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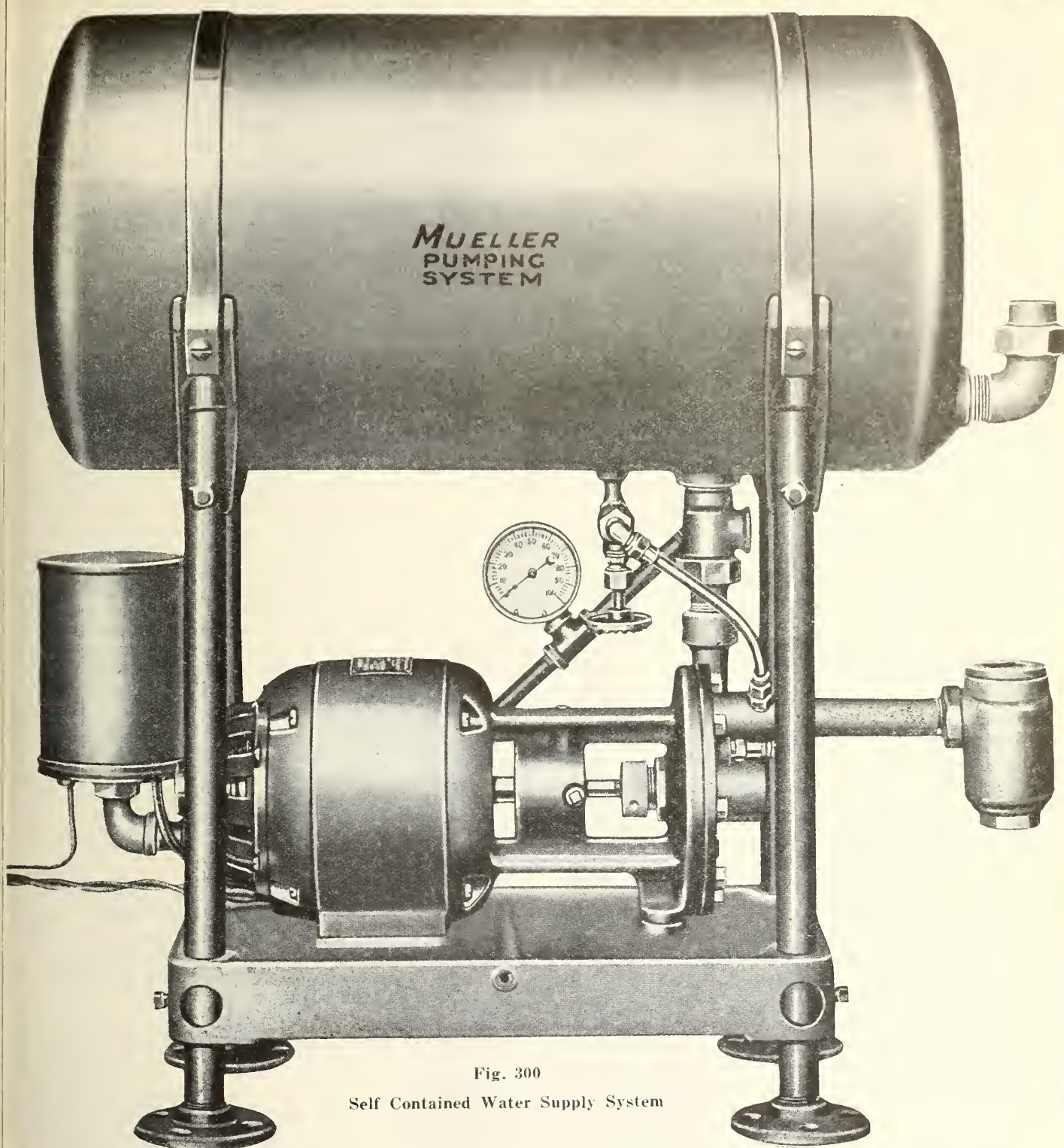


Fig. 300

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Modern Plumbing Essential in Homes

MODERN plumbing is the science which gives the modern home comforts and conveniences which put to shame the homes of wealth and splendor of former years, and which safeguards the health of the family and works hand in hand with medical science in the prevention of disease.

Modern plumbing is not merely a net work of concealed pipes, valves and fittings, supplying a few fixtures with water, but it is an ideal—an ideal of comfort with economy, beauty with utility, finish with durability. It has given the cottage of to-day better fixtures than are to be found in the mansions of 20 years ago.

Modern plumbing teaches us how to live and puts the means within the reach of every family. It has carried its tenets to the small village and to the farm. It has conquered stubborn opposition in its efforts to better living conditions. It has made the factory a source of pride to its owner and a model of cleanliness and sanitation to the employees. It has raised the standard of living throughout the land. It has established a greater difference between this and other countries than any other one thing in the daily life of the people.

People select the furnishings of various rooms with infinite care. But how often do they pass over the equipment of their bathrooms and their plumbing in general, with a shrug? And how much more important it is that the bathroom be properly equipped, though judiciously, there. Plumbing fixtures are used every day. They are not to be shifted about to secure variety or to satisfy a whim. They are not to be quickly discarded when fashions change. The layout of the bathroom, the selection of plumbing fixtures and especially of mechanical trimmings such as valves and faucets, which above all else should have easily renewable wearing parts—these matters are worthy of the utmost consideration.

Pointers for Heating Equipment

THERE are a number of arguments which the heating engineer can advance in connection with a campaign to encourage hot water and steam heating. One Toronto plumber who has taken part in this campaign with good results, uses his show windows a great deal to further the idea. It has been found that there are a great many heating installations where the use of radiators would be much more satisfactory than other systems. In addition to the use of such window displays the heating engineer can make good use of his advertising space to develop the idea.

One ad recently appearing on this subject under the heading "Heat by Radiators" stated "Faulty heating by old fashioned furnaces and stoves accounts for many a 'cold' and many more serious winter ailments. If one room is too hot—another too cold, you suffer 'indoor exposure'—surest source of sickness in the cold weather. Why take the chances, risk the discomfort, lack the convenience of heat by radiators? There's health in the home warmed by radiators; no risk of 'indoor exposure' and no dirt, soot, dust or gaseous fumes are carried into the rooms. All rooms are cheerfully, genially warmed when you heat by radiators, properly installed. Let us tell you more about it; economical in use, lasting a lifetime."

Another plumber's ad on this topic stated "Most warmth for the least money for the rest of your life. Modern radiator heating soon pays for itself in fuel saved, and gives lifetime service, keeps uniform, easily regulated warmth throughout the house. It adds far more than the cost to the value of the property. Our heating systems are economical and inexpensive. Let's talk over your heating problems now."

These are just some suggestions for suitable ad. copy.

Dangers of Gas Poisoning

IT IS again shown by the death of ten Toronto men in the gas works recently that carbon monoxide, one of the principal constituents, is highly poisonous, and is the more dangerous because it is invisible and without smell. A room might be full of it, yet a person entering would be quite unaware that he had entered a lethal chamber, it is pointed out by a correspondent in a late issue of The London Morning Post. "Consciousness would suddenly be lost, and the end would come speedily. The only sure remedy, were the victim discovered and removed from the room, would be the transfusion of blood from a healthy subject—and it would be practically impossible, of course, to find a person willing to provide a pint of his own blood (the loss of which would seriously endanger his own life) within a very short time limit. It is said as little as a half of one per cent. of carbon monoxide in the air breathed has caused death in cases where coke or charcoal has been burning in an ill-ventilated room, while as little as one-tenth of one per cent. has had most injurious effects."

This gas, as numerous fatal cases show, is a chief ingredient of the fumes of burning charcoal. It is given off by iron stoves at a red heat, and even by hot-water pipes. Tramps who sleep in warm brick kilns have often been poisoned by it. It is responsible for the deaths caused in places where water-gas is used for industrial purposes, e.g., in steel smelting.

Editorials in Brief

THOSE WHO accomplish most are the ones who begin at home and work outward in an ever-widening circle. Let us remember this: "The light that shines farthest, shines brightest at home." That is to say we will prove ourselves worthy of seasonal joys if we aim definitely to make our own business organization finer, stronger, and of loftier ideals.

* * * *

THE PROGRESS of the world depends upon the men who walk in the fresh furrows and through the rustling corn; upon those who sow and reap; upon those whose faces are radiant with the glare of furnace fires; upon the delvers in mines, and the workers in shops; upon those who give to the winter air the ringing music of the axe; upon those who battle with the boisterous billows of the sea; upon the inventors and discoverers; upon the brave thinkers.—Robert Ingersoll.

EDITOR'S ANNOUNCEMENT

FRANK STOCKDALE TO WRITE FOR EVERY ISSUE OF SANITARY ENGINEER

"Minute Messages" for the Busy Sanitary Engineer

IN THE March 1 issue of Sanitary Engineer we will offer the first of a series of "MINUTE MESSAGES" by Frank Stockdale, nationally known authority on business store problems.

A great many of the readers of Sanitary Engineer are acquainted with Mr. Stockdale and his work and will welcome the announcement that we have secured his service in furnishing a series of inspiring and instructive articles for **exclusive** publication in Sanitary Engineer. The series will be continued throughout the year.

Mr. Stockdale's "MINUTE MESSAGES" will be presented in a most graphic way by use of cartoons. Each cartoon, made by one of America's greatest cartoonists, will be accompanied by a brief "snappy" right-to-the-point article by Mr. Stockdale, emphasizing and supplementing the message portrayed by the picture itself. Pictures are Universal Language—everybody reads and enjoys them.

Pictures relieve mental effort—they rest the tired mind.

Pictures are Forceful—they hit hard, sink deep, and the ideas stay put.

Pictures save time—the busy man demands them, all others like them.

You busy plumbers will revel in the simplicity and force of the "MINUTE MESSAGES" as they will embody worth-while,

business-building ideas—delivered with a clean, constructive, lasting punch—ideas which will be of great value in solving your everyday business problems.

Mr. Stockdale's work during the past twenty years in organizing Merchants' Institutes, at business conventions and in rendering actual personal service to Merchants in their stores has been a great value to the merchant in lifting him out of the drudgery of old time methods of doing business and adding to his power to do more for himself and his customers.

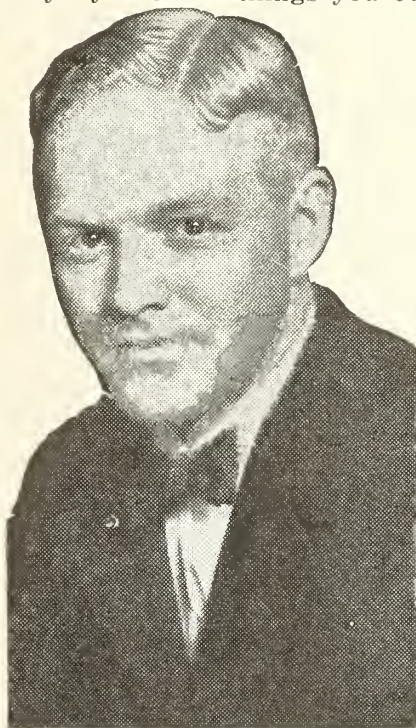
Mr. Stockdale's "MINUTE MESSAGES" will tell you at a glance the big, vital, profitable things you ought to know. "THEY HIT THE NAIL ON THE HEAD," "THEY DRIVE THE POINT HOME" and "THEY MAKE IT STICK."

Every day new problems arise as result of some development in merchandising, and as competition of other trades, and keen competition among plumbers themselves increases, the need for such terse and timely messages is very apparent.

These "MINUTE MESSAGES" are written for **you**, the busy plumber. You will profit greatly by following them closely in each issue of **SANITARY ENGINEER**.

Watch for the first "MINUTE MESSAGES" in our March 1 issue.

THE EDITOR.



FRANK STOCKDALE

WATCH FOR THE FIRST ARTICLE IN MARCH 1st ISSUE

*THEN—read his articles in every issue of **SANITARY ENGINEER** throughout the year.*

News Notes From Coast to Coast

Doings in the Plumbing and Heating Industry

BUSINESS CHANGES

Montreal.—Pilon & Beauchamp, plumbers, have dissolved.

Kitchener, Ont.—L. Durst has withdrawn from the plumbing firm of Hollinger and Durst and will be in business for himself.

PERSONAL

H. N. McAlpine, Manager of the Water System Department of Empire Brass Mfg. Co., Ltd., representatives in Eastern Canada of the Duro Pump & Mfg. Co., Dayton, Ohio, was accorded standing of 180.1 per cent. and entitled to the title of Ambassador McAlpine of Canada, in an unique election contest held as a stimulant to the sales forces of the company.

FOUR FURNACE MANUFACTURERS MAY AMALGAMATE

Sanitary Engineer understands that plans are in progress for the amalgamation of four Ontario manufacturers of furnaces. Some firms approached for a statement have declined to commit themselves, but an announcement may be forthcoming shortly.

TO DUPLICATE WATER SYSTEM

Toronto.—The matter of expropriating some 17 acres of land at Victoria Park in the east end as a site for the Water Works duplication system, which will involve the spending of millions of dollars, went through council without as much as a question being asked, as did the by-law giving effect to the Board of Control recommendation.

NEW HEATING PLANT PROPOSALS ARE LAID BEFORE CITY COUNCIL

Vancouver.—Despite the electorate's refusal to pass the Central Heating Franchise By-law at the recent municipal elections, another concern is contemplating asking for a civic franchise, which, under the charter must also be submitted to the people.

First intimation of the new enterprise was received through A. D. Creer, former engineer of the Joint Sewerage Board. In a letter to the City Council he stated that application would be made for a lease to Granville street property located between the Robertson & Hackett mill site and C. P. R. holdings.

The lease would be required, said the letter, as a company was being incorporated to construct and operate central heating plants in Vancouver, for which application for franchise would be made in due time.

WILL EXPEND \$1,000,000 ON AQUEDUCT

Montreal.—The city council, upon the recommendation of the executive committee, has passed the by-law authorizing the expenditure of another \$1,000,000 for the improvement to the city aqueduct system. The by-law states that the aforesaid amount is required to further enlarge and develop the aqueduct and for the construction of reservoirs and filtering basins.

MONTREAL SANITARY BRANCH HAD ACTIVE YEAR

Montreal.—Dr. S. Boucher, Director of Public Health, has issued his report for 1922 covering the work of the Sanitary Department, under J. E. Durocher, superintendent, and Aime Cousineau, sanitary engineer.

Inspectors made 38,129 visits to dwellings, 400 school inspections, and 5,152 calls at divers establishments. New buildings inspected numbered 3,465, plumbing systems, 2,864, and 1,815 alterations.

Complaints made by the department total 9,325, of which 6,961 were found warranted upon investigation. Warnings sent out numbered 5,909, and of 104 actions taken, judgments were realized in 98 cases. In 6 actions the court suspended sentence.

The laboratory department made 16,757 analyses, of a chemical or bacteriological nature. Of these, drinking water, water from public baths and illuminating gas numbered 218.

PLUMBERS SEEK 40 P. C. BOOST IN SCALE OF WAGES

Winnipeg, Man.—An increase of 40 per cent. over the scale paid last year is demanded by union plumbers of Winnipeg, who went into conference with a committee of employing plumbers to negotiate a wage scale for the 1923 building season.

It was learned from officers of the union that at the preliminary conference, agreement was reached in regard to all of their demands with the exception of the wage scale.

A 44-hour week, the same as last year,

was agreed to, also the master plumbers consented to a continuation of last year's agreement with regard to legal holidays and overtime. The increase demanded by the plumbers union, if granted, would bring their scale up from 90 cents to 1.26 an hour.

The chief argument advanced by the union men for a 40 per cent. increase was that it will have to be paid if the steady exodus of men of their craft from Winnipeg to the large building centres of the United States is to be stemmed. Pointing out that many of their union have already gone south and more are contemplating moving, the union representatives stated that the only hope for bringing any of them back, or even preventing a further exodus, is in the increased demand.

ENGINEERS DECLARE SYSTEM AT WEST LONDON MOST EFFICIENT OF ITS KIND

London, Ont.—London's new sewage pumping station, according to the London Engineering Society, is so efficient that it can be said to be much in advance of any other system of its kind.

The society carried out an inspection in every way and pronounced it satisfactory.

The new sewage pumping station was installed last year in West London, to deal with what was at that time one of the great problems confronting the city.

The greatest difficulty that lay before the engineers was the fact that West London, was so very low that no sewage could flow of its own accord to the septic tanks down by the river and it was necessary to pump the fluid up to a level whence it could run down to the tanks.

Plans were accordingly drawn up by Hector S. Phillips, the late assistant engineer of the city, and the work of construction, begun in September, 1921, was carried out under the supervision of W. M. Veitch, the present sewer engineer for London, to a successful conclusion in June of last year, when the new station was finally completed.

WORK ON KITCHENER BY-LAW

Kitchener, Ont.—It is expected that the committee which is revising the plumbing by-law will meet in the near future. All possible information on by-laws in other cities is being secured by the chairman, Ald. E. Ratz, and the city engineer who is a member of the committee is also formulating proposals.

WATER CONSUMPTION IN HAMILTON IS HIGH

Hamilton, Ont.—Under direction of City Engineer Gray, men have commenced sinking a shaft on the lake side to the 36-inch wooden intake. This intake has been in disuse for a number of years by order of the health department, as it was in very shallow water and too close to the shore, and was completely choked with sand. This conduit is only about 200 feet in length and in 8 feet of water. The plan of the engineer is to drill a hole in the top of the pipe and dig a shallow ditch so that the water could flow into it from the lake. The men of the department are still working on this plan, which will be resorted to in case of emergency.

The water consumption in Hamilton per capita is 130 gallons a day, the engineer stated, and on the mountain 208 gallons per capita per day. Even if the mountain hospital and the nurses' home were not supplied, the rate would be extremely high on the hilltop.

On the other hand, in cities where the water is metered, the consumption per capita is much lower, ranging from 65 gallons to 40 gallons per day, and as low as 70 to 85 gallons in cities the size of Hamilton with about the same number of industries.

WORK IS COMPLETED ON PLUMBING BY-LAW

Ottawa.—At a round table conference the newly appointed plumbing by-law committee, at its first meeting completed all its work and definitely compiled a by-law which will be presented to the Board of Control. The committee for this task last year failed to come to any agreement. Many clauses in the by-law had been opposed by the plumbing trade on the grounds that it would increase the cost of the work. After considering a number of amendments, proposed by City Plumbing Inspector S. Daughtry, the committee came to an agreement and unanimously adopted the amendments. Under these new changes, plumbing will remain at the same price. The by-law will make compulsory a number of alterations, now commonly in force. After being dealt with by the Board of Control, the amended by-law, Number 2262, was submitted to City Council on February 5 and will be put in force March 1.

Under the amendments adopted by the commission, the principal changes to be made are as follows:

A minimum charge for permits to be made by the plumbing inspectors for plumbing installation and alterations; separate drains for all buildings other than tenement houses which have to have six-inch drain pipes; a minimum of four inches diameter for sewer drainage pipes; deep seal traps in the basement of all buildings; no sheet metal piping to be used; plumbers to be responsible for all work performed and not the owners of the building.

Oil Burners Much Used In London

London, Ont.—Indications point to an unusually early opening of building activities in the spring. Architects are already busy on many projects. That an unusually large number of homes will be erected is certain from plans already on the boards. Many of the homes will run from \$10,000 to \$25,000. A number of more moderate priced homes running from \$4,000 to \$7,000 will be built also. Plumbers are looking forward to a splendid volume of business in all lines of materials and home requirements.

An interesting phase of the situation is the keen interest being shown in oil burning equipment for heating. Home owners who have been getting along on scanty supplies of fuel and who have been uncertain as to whether they were even going to get that, are planning if possible to get away from the coal shortage in future. Many inquiries are being received by architects for oil burning equipment and several architects in discussing the question predicted that there will be a big and profitable field open for anyone who can supply people with dependable oil burning heating apparatus.

In connection with this it might be of interest to note that in the new \$75,000 monastery for which plans are being prepared for the Redemptorist Fathers here, the heating will be hot water and oil burners.

Present indications point to new records being made in building this year as in addition to the many new homes there are several large projects under way. Between \$1,500,000 and \$2,000,000 will be expended in new buildings for the Western University. A new seminary to cost \$600,000 is planned by Bishop Fallon. A new \$200,000 plant to replace the buildings recently destroy-

ed by fire is contemplated by Reid Bros., manufacturing stationers, and a new factory for the Orange Crush Bottlers will be erected shortly. In addition to these the Board of Education has a school building program that will involve an expenditure of \$600,000 and the council will start work shortly on a new \$300,000 city hall and a new \$50,000 registry office.

Conference of Hamilton Stove & Heater Company

Hamilton, Ont.—The salesmen of the Hamilton Stove & Heater Co., Limited, Hamilton, Ont., met in conference at their headquarters in Hamilton and discussed with the general sales manager, Mr. S. C. Moore, their selling problems for the coming year. In speaking with Mr. Moore, he reports that there is a very optimistic feeling among his staff in reference to 1923 business. The Hamilton Stove & Heater Company has inaugurated a new sales policy; this was heartily approved by the sales force who returned to the various fields more enthusiastic than ever. They believe that a big volume of business will be done in the stove and furnace trade this year, not only by themselves, but by other stove manufacturers.

Business Men's Association Adopt Novel Ad. Slogan

"No further need to hesitate. Just what you need is at your gate."

This is the message which the members of the Yonge and Bloor Business Men's Association, Toronto, are advertising throughout their own district. Chairman Wm. Cowan believes that by the use of judicious advertising this locality might in time become the "Fifth Avenue" of Toronto.



"Jimmy" Yates on the right, sanitary engineer of Brandon, with his friend R. N. Willoughby, on their return from a day's shooting in the Brandon hills. They got seventy rabbits in four hours. Can you beat that?

Heating Engineer Gives a Demonstration

Townsend Plumbing and Heating Co., Winnipeg, Man., Arouse Interest in Warm Air Furnaces by Demonstrating Quick Lighting Facilities

WINNIPEG, Man.—A furnace completely lighted, heated, and banked with sufficient soft coal for ten hours, with drafts closed, and all in the space of eleven minutes was the result announced after a trial demonstration by the Townsend Plumbing and Heating company. The object of the demonstration was to show how an ordinary hot air furnace might, at small cost and little inconvenience, be turned into an efficient consumer of soft coal with none of the usual concomitant dangers from gas explosion or the necessity of frequent banking.

The experiment was carried out under the direction of G. R. Pratt, fuel engineer, who had been working on the subject for four years. The furnace was cold at the start. The demonstration commenced with the installation into the furnace of a specially constructed hollow L-shaped arch through which air had access to the fire box. This was inserted in such a way to divide the coal chambers in two, while lying at no point nearer than eight inches to the grate. The longer arm of the device was perforated. A kindling fire was then started in the furnace, and on this was placed nut and pea soft coal. One side of the coal chamber was filled with coal level

with the furnace door. The other side was left free. Gas from the highly banked coal was drawn down under the arch and was burned up by the urgency of the air imported through the perforations of the arch. In this way all the gas caused by the combustion of the coal was utilized, so that not only was the heating power of the coal increased but the danger of explosion minimized. A second saving would be effected, it was explained, in the ability to burn smaller coal which was not only cheaper in terms of money but went farther.

Should one side of the furnace become clogged or dirty the fire might be transferred to the other by allowing the banked coal to dwindle and re-coaling on the other side of the arch. Either side of the grate might be shaken separately it was stated, but shaking was not necessary before re-stoking. Coal was normally put in on top of the supply already there.

Economy in coal as to both quality and price, lessening of the danger of explosion and increased facility in looking after the furnace were summarised as the results of the demonstration, which passed off to the satisfaction of all present.

SHOWS VALUE OF CENTRE HEATING

Winnipeg.—In popular language, intelligible to everyone, J. W. Sanger, chief engineer of the hydro-electric system, gave a full and scientific description of the city's proposed steam standby and central heating plant to the Canadian Credit Men's Trust Association.

Central heating systems, said Mr. Sanger, dated back to the time of James Watt. But they got their impetus from the discovery that 35 per cent. of the heat in coal went up the smokestack of a locomotive and only 10 per cent. of the heat energy went to turn into the crank shaft to perform useful work. The remaining 55 per cent. went into the atmosphere in the form of exhaust steam.

In the first central heating plants it was exhaust steam that was utilized. Then the plants became so popular that live steam had to be used as well. Some electrical light and power companies in the United States to-day sold their exhaust steam because they figured it cost them nothing to produce, while other companies had gone into the business of selling live steam.

Temperature records of large cities on the North American continent showed that there was no city more favorably

situated than Winnipeg for a central heating plant. New York had a heating season of 197 days and a mean January temperature of 30 degrees Fahr. Harrisburg, the capital of Pennsylvania, had a mean January temperature of 32 degrees Fahr. The corresponding figures for other cities were as follows: Detroit, 206 days, 27 degrees; Chicago 212 days, 25 degrees; St. Paul, 222 days, 12 degrees, while Winnipeg had a heating system of 253 days and a mean January temperature of one degree below zero.

PLUMBING SCRUTINIZED AT TOWNSHIP INQUIRY

Taking of evidence in the York Township inquiry conducted by Judge Denton has been completed after a lapse of about three weeks. The interest had centred in the probe of the Treasurer's Department and into the manner in which the township had carried on its plumbing.

H. Hughes, chief plumbing inspector for the township, was able to establish that he was a duly qualified plumber, and was followed by Harry Rushby, a plumber, who said that he was unaware of any general dissatisfaction among the plumbers regarding instructions received from the chief plumber.

A \$200 HOME WATER PLANT

(Continued from page 13)

It is important that the air and water should both enter the tank on or near the bottom and that water should be drawn from the tank at or near the bottom. It is preferable that the inlet and outlet connections should be on the opposite sides of the tank so that the air and water may separate and air will not be forced into or allowed to escape into the distributing pipe lines.

Galvanized Tank Not Imperative

The question of whether a galvanized tank is necessary is often brought up. Generally they are not necessary, unless water is alkaline or other unusual water conditions prevail. It is desirable, however, if small tanks are used that they be galvanized. This is because in all-iron tanks a small amount of rust will form. If, however, the tank is large the water movement in the tank will not be fast enough to disturb this rust. If the tank is small the water will rise and fall rapidly and is likely to disturb the rust, discoloring the water and washing the rust from the sides of the tank so that another coating will form and gradually the walls of the tank will become corroded and thin.

So many domestic pumping systems have been put on the market during the past few years that it is difficult for the prospective purchaser to make a choice.

As a general rule low priced units will be found to have nothing but their cheapness to recommend them. A good unit costs more than a poor one but in 100% of cases will be more satisfactory in operating and cost less to keep up.

A first class pumping unit must be equipped with the proper kind of motor. If for use on alternating current this should be of the repulsion type and not of the cheaper split phase type.

Construction of Pump

The pump should be compactly built, operate at as slow a speed as possible and should have good long shaft bearings. In the best pumps all bolts, nuts, screws, which have to be removed for repairs are made of brass so that they will not rust in place. Piston rods should be of bronze or bronze covered and should be so designed that water cannot creep along them from the stuffing box to the cross head and thence get into the crank case. Water in the crank case displaces the oil and crank bearing will not get proper lubrication.

Don't sell a unit because a salesman tells you it is the best made. He probably thinks it is but he may be wrong. Find out all about it and about the manufacturer, what he has made and how his goods have stood up. How much does he know about pumping equipment?

If he can satisfy you on these points and will co-operate with you in helping to sell his apparatus and keep it sold, you can make no mistake and will reap a handsome profit from the sale of domestic water systems.

Patterns for Smoke Pipe Branch

Prepared for Sanitary Engineer by O. W. Kothe, Principal, St. Louis
Technical Institute, St. Louis, Missouri

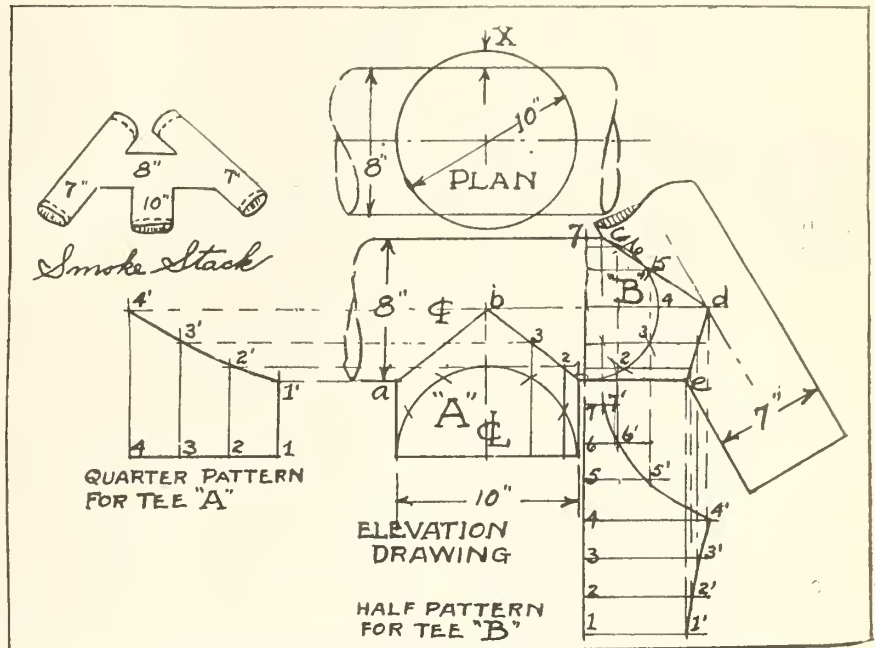
RESPONDING to an inquiry for a smoke pipe branch as per sketch, and which is reproduced in the drawing, will say that this is an impractical fitting to lay out. You cannot mitre a larger pipe over a smaller pipe as measurements seem to indicate, although put them in your sketch from your letter. I may have the wrong viewpoint on your idea; but that is the interpretation you left. To lay this fitting out accurately, a person would have to use triangulation.

About the best way to treat the fitting is to lay out each pattern as if they were tees of similar diameters, and then squeeze the sides together so as to take out the opening X in the plan view. This will elongate the tees and only an approximate fit is assured. Possibly some one else might work this different, in fact possibly a dozen mechanics may each go at it different in order to achieve their aim. But you see, since tees must be elongated, no true mitre line can be established; and, therefore, there is liable to be more or less trimming before a suitable fit is secured.

But anyway you first draw the center line of "A" and then the center line of "B" and then of -d-. After this measure your diameters, and describe semi-circles "A" and "B" and treat in equal spaces, and extend them to the mitre lines 1-b, also -c-d-e as shown. This gives your intersections with which to develop the patterns. For the larger tee: pick the girth from half circle "A" and set off on a line as 1-4 and then develop the lines from the mitre 1-b as points 1'-2'-3'-4' in pattern. This pattern is then reversed over four times and you have the whole pattern. Some trimming will be necessary in order to account for the elongation it will have to undergo.

The pattern for the pipe "B" is developed by picking the girth from semi-circle "B" and setting it off as 1-7 in pattern. Draw stretchout lines, and then drop lines from mitre line -c-d-e- which establishes points 7'-6'-5'-4' etc. to 1'. Sketch a line through these points and you have your pattern as shown. The necessary lengths between pipes must be added and you can cut out the pattern, double it over, and you have the full pattern.

The openings had best be marked out after the tees are made up and shaped to make a snug fit—then mark out the opening in your pipes and make your connection. Laps must be allowed extra on all patterns because the development is net, and edges must be allowed extra or the girth will be short.



Development of Patterns for Smoke Pipe Branch.

WE LAUNCH A PRODIGIOUS PUBLICITY CAMPAIGN

(Continued from page 15)

tearze to my voyce.

"No and I ain't interested in plumb-ers neether," he sez with the cruelty of a inquizitioner.

"Well I'm goin to leeve these kutz with you," I sez, puttin them on the gait poste and layin 2 smoak-testin segars on top of them.

"I'll be around again nxt. wk.," was my partening shot. "Good-nite," and with that I turned on my heal and remounted the lizzie.

"Yeh neadn't bother," he hollered out as I turned the lizzie tords town. But as I looked over my sholder I seen him pick up the segars 1st and put them in his vesst pokt and then took up the kutz.

Next a. m. when I breazed into the shop Bill and Vilet was their with a look of xpectancy on there faze.

"Well," sez Bill, "got the kontrak in yr. pokt.?"

"Roam warnt bilt in 1 day," I responds. "Jest give me a little time. A feller dont usulie ann. his ingaigement the 1st time he culls on a girl does he?"

I looked tword Vilet but she had her head reverted and if she herd what I sed she didnt turn a hare witch was jest as well as it sounded kinda follish.

"Did you see Sigh?" ast Bill.

"Oh I scene him all O. K. but he scene me 1st."

"Did he order you off the premisses?"

"No; I went on. Seein as he didnt invyte me in but hung onto the gait as if he was skeered I was going to swipe it, our conversatn. was moar less formel. However I sed Ide call agen and left a cupple of segars."

"If them segars is like what you give me last weak heel have the ax reddy for you the nxt. time," sez Bill with a laff.

"You leave that 2 me," I retortured with confydence. "Ime goin to land that old hick or braik a legg."

Vilet give me a smile that maid me feal like I cood a konkered the world.

ENGINEERS OF WATER WORKS MEET IN TORONTO

The mid-Winter meeting of the Canadian section of the American Waterworks Association is being held in Toronto, and the men responsible for the design, construction and operation of waterworks plants all over Canada are in attendance. There is an exhibition of waterworks equipment and supplies, and over 25 representative firm reserved space.

The officers under whose auspices the meeting is being held are as follows:—Chairman, R. L. Dobbin, Peterboro; vice-chairman, F. A. Dallyn, Toronto; trustees, H. R. Starr, Orillia; N. R. Wilson, Brantford; Jas. J. Salmond, Toronto; secretary-treasurer, C. D. Brown, Walkerville, Ont.

Market Conditions and Tendencies

Price Trend on Sanitary and Heating Supplies

Markets at a Glance

IN THIS issue there is shown an extensive list of price changes in many lines of plumbing and heating supplies. These changes are all toward higher levels and reflect the strength of primary markets and the general feeling of optimism throughout business circles. Prominent among the changes noted in the general advance are those on galvanized products, which have risen from 25c to 50c per hundred square feet, tinware, graniteware, embossed and japanned ware which have advanced from 2 to 5 per cent., iron pipe and nipples, on which new higher lists have been announced, putty quotations are 50c per hundred lbs. above old levels, solder with a raise in price of 1c per pound and slightly higher quotations on ingot metals. From primary sources the indications, in some other lines, are for still more price adjustments toward higher levels, the opinion being that

with increased demand, production will be taxed and deliveries slow. In the case of the steel and iron sheet market it is pointed out that very few U.S. producers have any galvanized sheets to sell for first quarter delivery and they are quoting premiums of not less than \$5.00 a ton over U.S. steel corporation price, for any sale now made and as far as the steel corporation is concerned they have absolutely nothing to offer, although they have not advanced their price.

It is also noted that in local circles, industrial plants are becoming daily more active and capacity operation is fast becoming the rule, in some cases for the first time in three years. Since the French occupation of the Ruhr, few shipments have been reported from European sources, this accounts in some measure for the industrial activity in American centres.

Montreal Markets

MONTREAL, February 13.—Price developments continue to attract attention in the markets for plumbing and steam-fitting supplies. Revisions now recorded are all in an upward direction with the exception of closet combinations, nominal quotations on which are a little lower. A new higher list on wrought piping is one of the chief changes upwards, both black and galvanized pipe being shown at increased quotations. Revised discounts on wrought nipples bring advanced prices, while bar and wire solders are slightly higher. Radiators, boiler tubes, and in tools, stocks and dies, are also increased in price. Various lines of tin shop supplies are affected in the general revision upwards announced by ware manufacturers, and the new season's prices on tin sap buckets and spouts are higher than last year. Strength remains in primary steel markets, and this is reflected on various iron and steel products, including sheets, bar products, soil pipe and fittings, corrugated sheets, range boilers, etc. Revisions in certain of these lines would not be surprising at an early date. Ingot metal markets are also displaying a firm tone.

TINSHOP SUPPLIES AFFECTED BY NEW WARE PRICES

Montreal.

Manufacturers of enamelled ware, galvanized and tin ware announce new higher prices on practically all products, and certain lines of tin shop requirements are included. Following are also new quotations on certain wares which will be of interest to many merchants:

Pieced tin ware, plus 40 p.c.; Stove boards (wood lined) 10-5 per cent. Stove boards (paper lined), 30 per cent. Fire shovels, plus 15 per cent. Steel sinks, plus 20 per cent. Stove pipe elbows, Net list. Stove pipe, Net list; Light black elbows, 6" \$1.60 doz. net; Light black elbows, 7 inch, \$1.85 doz. net. Chimney thimbles, plus 10 per cent. Tinners' trimmings, plain, 50 per cent. Tinners' trimmings, retinned, 10-5 per cent. Milk can trimmings, plus 40 per cent. Copper bottoms Net list. Trimmings, general plus 10 per cent. Creamery can taps, prices on application.

SOIL PIPE AND FITTINGS ON FIRM MARKET TREND

Montreal.

Current quotations on soil pipe and fittings remain at unchanged discounts with the undertone of the market again described as firm, owing to higher costs of fuel and raw materials. Although new higher prices on radiation, an allied product, are issued, there is said to be no indication of any immediate changes in either pipe or fittings. Prices, however, are considered firm as follows:

SOIL PIPE—

2 and 3 inch	35%
4 inch	35%
5 and 6 inch	35%
8 inch	net
FITTINGS—	
2 to 6 inch	45%
8 inch	net

NEW SEASON'S PRICES ON SAP BUCKETS AND SPOUTS

Montreal.

Quotations for the coming season are now issued on sap buckets, syrup cans and spouts. Tin buckets and spouts are about ten per cent. higher than last year, while galvanized buckets are slightly lower. Syrup can prices are unchanged. Following are new quotations:

SAP BUCKETS—

Straight pattern—Per 100 No. 7, \$14.95; No. 8, \$16.25; No. 9, \$18.20; No. 12, \$19.50; No. 16, \$23.40.

Western pattern 6 pt. \$14.63; 10 qt. \$19.50.

Extra heavy—No. 12, \$24.05; No. 16, \$29.25.

Frontenac—10 qt. \$20.59.

Galvanized straight—No. 9, \$20.70; No. 12, \$21.20; No. 16, \$27.90.

Galvanized Western—10 qt. \$21.30.

Square syrup cans, one gallon, \$16.75 per hundred.

Spouts Perfection, \$20.00; Eureka, \$17.00;

Sterling \$24.65 in lots of 1000.

CORRUGATED SHEETS REMAIN ON FIRM PRICE BASIS

Montreal.

In some quarters higher quotations on corrugated sheets are thought likely at any time. Other dealers describe the market as very firm, but with no definite indication of a change in an upward direction at present. There is undoubtedly a firm undertone in these products due to the strong tendency in flat galvanized sheet markets. Prevailing list prices and discount are as follows:

CORRUGATED SHEETS—

	Per 100 Sq. Ft.
No. 28 gauge	6 50
No. 26 gauge	7 00
No. 26 U. S. gauge	8 00
No. 24 gauge	9 00
No. 22 gauge	11 00
No. 20 gauge	12 50
No. 18 gauge	16 50
Less 10 per cent.	
Lighter than 24 gauge and wider than 27 inches, \$0.75 per square extra.	

REVISED QUOTATIONS ON CLOSET COMBINATIONS

Montreal.

The easier tendency recently noted in the market for closet outfits has resulted in slightly lower prices on combinations and bowls. Outfits are reduced approximately one dollar each, while a recession of varying extent is recorded on bowls. Seats and tanks are unchanged, although present levels on these are more or less nominal, certain jobbers quoting a little lower than others. Following are revised quotations:

CLOSET COMBINATIONS—

Low Down Outfits, each	
Closet, standard outfit, oak	24 00
Do., post hinge seat	25 00
Do., oak vitro or Pussyfoot	24 00
Do., post hinge seat	25 00
Do., mahogany vitro or Pussyfoot, post hinge seat and cover	27 45
Do., vitreous china, oak post hinge seat and cover	27 45
Do., vitreous china, mahogany post hinge seat and cover	27 70
Do., white vitro or Pussyfoot, oak post hinge seat and cover	27 50
Do., white vitro or Pussyfoot, mahogany post hinge seat and cover	27 70
Do., enamelled iron tank, oak post hinge seat and cover	28 45
Do., enamelled iron tank, mahogany post hinge seat and cover	28 70
Add for 3/4" valve on supply pipe	1 25
Add for spud	0 60
Add for reverse trap bowl	1 00
Add for syphon jet bowl	7 00
Deduct for supply pipe	0 80
Deduct for floor hinge	0 60

CLOSET BOWLS—

Richefeu bowl	8 00
Washdown bowl with spud	9 90
Reverse trap bowl with spud	9 90
Syphon jet bowl with spud	15 40

CLOSET SEATS—

Oak post hinge seat and cover	3 85
Oak wood strip seat and cover	3 50
Mahogany finish post hinge seat and cover	4 05

CLOSET TANKS—

Low down, oak vitro or Pussyfoot with fittings less seat	13 20
White vitro or Pussyfoot with fittings, flush elbow and supply	15 65
Vitreous china tank with fittings, flush elbow and supply	18 00
Enamelled iron with fittings, flush elbow and supply	18 00

SLIGHTLY IMPROVED SALE OF ENAMELLED WARE

Montreal.

With the winter weeks passing, a slight improvement is noted in the movement of enamelled ware products, and dealers anticipate a continued betterment as the season advances. No change is made in quotations, with rumors of unsettlement in some quarters. Following are list prices and discount:

ENAMELLED WARE—

Sinks, roll rim—	
18 x 30	\$23 00
Sinks, flat rim—	
16 x 24	1 only 2 only 3 only
18 x 30	\$7 50 \$7 40 \$7 30
20 x 30	8 70 8 60 8 50
24 x 30	9 90 9 80 9 70
Bath tubs, roll rim, 4, 4 1/2, 5 feet, 24 to 30 in. wide	51 40
Bath tubs, 5 1/2 feet	57 10
Lavatories—	
17x19 in. Apron F139 or P4045	15 30
18x24 in. Apron F154 or P3845 or P3847	23 60
18x21 in. Apron F169 or P4205	17 60
17x19 in. Roll rim. F241 or P4345	12 60
Less 33 1-3 per cent.	

NEW HIGHER LIST ON WROUGHT PIPING

Montreal.

As pointed out in recent issues of Sanitary Engineer, the undertone of the wrought pipe market has been very firm. A new list is now issued, superseding No. 57, showing higher prices on both

black and galvanized pipe. The new list, No. 58, is as follows, recording an advance of \$6 a ton on black pipe and \$4 per ton on galvanized:

Price List No. 58.	WROUGHT PIPE				February, 1922.	
	Standard	Butt-weld	Pipe S.C.			
Size	Blk.	Galv.	Blk.	Galv.	Blk.	Galv.
	Steel	Gen.	Wrot.	Iron		
1/4 in.	6.00	8.00				
1/2 in.	4.14	6.12	7.38	9.42		
3/4 in.	4.14	6.12	7.38	9.42		
1 in.	5.27	6.72	7.57	9.10		
1 1/4 in.	6.44	8.05	9.20	10.93		
1 1/2 in.	9.18	11.56	13.26	15.81		
2 in.	12.42	15.64	17.94	21.39		
2 1/2 in.	14.85	18.70	21.45	25.58		
3 in.	19.98	25.16	28.86	34.41		
3 1/2 in.	31.59	39.78				
4 in.	41.31	52.02				
4 1/2 in.	53.36	66.24				
5 in.	63.22	78.48				

Standard Lapweld Pipe S.C.	Per 100 feet.			
	Blk.	Galv.	Blk.	Galv.
	Steel	Gen.	Wrot.	Iron
2 in.	23.31	28.49	32.19	37.74
2 1/2 in.	34.52	42.71	48.56	57.33
3 in.	45.14	55.85	63.50	74.97
3 1/2 in.	54.28	67.16	76.36	90.16
4 in.	64.31	79.57	90.47	106.82
4 1/2 in.	74.93	92.71	1.10	1.30
5 in.	87.32	108.04	1.29	1.51
6 in.	1.13	1.40	1.67	1.96
7 in.	1.48	1.83	2.14	2.55
8 in.	1.55	1.93	2.25	2.68
9 in.	1.79	2.22	2.59	3.08
10 in.	2.17	2.69		
10 1/2 in.	2.02	2.50	2.91	3.46
12 in.	2.60	3.21	3.75	4.45

REVISION NOTED IN RADIATOR DISCOUNTS

Montreal.

Through a revision in discounts quotations on radiation are increased four points. On the upright radiators the discount on hot water is now 51 per cent., and on steam 52 per cent., former discounts being 55 and 56 per cent. respectively. On wall radiators, discount is changed from 52 to 48 per cent. As pointed out in recent market reports, there has been a firm undertone in these products, with labor and fuel costs on the increase. No change is made in boiler prices and following are prevailing discounts:

RADIATORS AND BOILERS—

Radiator list prices are for 1, 2, 3, 4 and 5 column radiators, per sq. ft.
45 in. to 38 in., \$1; 32 in., \$1.10; 30 in., \$1.15; 26 in., \$1.20; 23 in., \$1.26; 22 in., \$1.30; 20 in., \$1.36; 18 in., \$1.40; 16 in., \$1.50; 14 in., \$1.55; 13 in., \$1.60. Discount 51 per cent for hot water, and 52 per cent for steam.
Wall radiators—5 ft., \$1.15; 6 ft., \$1.10; 7 ft., \$1.05; 9 ft., \$1.05; 12 ft., \$1.05; Discount 48 per cent.

Boilers—Round hot water boilers, sizes from 0 to 10, 60 per cent. off list. Square or sectional hot water or steam boilers, 15 in., 15 per cent. Square or sectional water boilers, 19 in. to 36 in., 20 per cent. Square or sectional steam boilers, 19 in. to 36 in., 17 per cent. Ontario Government trimmings, 15 per cent.

Round steam boilers, standard trimmings, 28 per cent. Ontario Government trimmings, 25 per cent.

F.o.b. Montreal, Toronto, Guelph.

PROMISING OUTLOOK FOR ASBESTOS PRODUCTS

Montreal.

Local dealers in asbestos products state that, while current trade can only be described as seasonal, there is a quite promising outlook for business at a little later date. By the number of inquiries and requests for figurings on requirements it is felt that a resumption of activities will be noted toward the latter end of this month and March. There

is a firm undertone in the market, with quotations unchanged as follows:

ASBESTOS PRODUCTS—

	Off list prices
2 ply pipe covering	57 1/2%
3 ply pipe covering	55%
4 ply pipe covering	50%
85% magnesia	40%

	Per bag
Boiler covering	7 75
Asbestos sheathing	8 25

NO CHANGE IN VALVE AND BIBB DISCOUNTS

Montreal.

No change is made in quotations on compression goods, notwithstanding higher prices recently appeared on other outside markets. There is a firm undertone in the market, but it is thought that no change will appear during the ensuing weeks at least. Following are present discounts:

VALVES AND BIBBS—

Compression work, standard	45%
Fuller work, standard	30%
Quick opening compression bibbs	43%
Bath cocks, quick opening	41%
Bath cocks, compression	41%
Basin cocks, quick opening	46%
Flatway stop and waste cocks, standard	56%
Roundway stop and waste cocks, standard	56%
Brass steam cocks, standard, 1/4 in.	50%
Radiator valves, standard	55, 25%
Do., removable discs	55, 25%
Globe, angle and check valves, standard	25%
Gate or straightway	25%
Emco globe valves	33%
Emco check valves	33%
Jenkins globe, angle, check and swing check	10%
Jenkins gate or straightway	16%
Jenkins iron body, globe and angle	15%
Jenkins iron body, gate	25%
N P. "O" and "S" traps	40%

FIRM TONE STILL DISPLAYED IN INGOT METALS

Montreal.

Firmness is still shown in ingot metal market, although advances have not recently been as marked as in former weeks. The unsettled conditions in Europe have reflected in metals generally and until the situation clears, developments may be numerous in these markets. Tin is firm, but quieter, while copper is also reported on the quiet side. Local quotations on both metals are practically unchanged. Lead remains as strong as ever on the New York market, with London also holding its own. Spelter appears to be marking time, and prices are again slightly easier. Antimony is very firm, with offerings from China practically nil. There is little if any change in the aluminum market, this metal continuing quiet.

STRONG TONE REMAINS IN PRIMARY STEEL MARKETS

Montreal.

Continued strength is apparent in basic steel market conditions. With British producers overseas announcing a general increase in practically all lines, mills to the south are gradually lining up higher prices from week to week in some quarters, although the larger interests have not yet taken any action in this direction. It is thought, however, that increased levels may be generally announced in the near future. Locally no change has been made since the revision three weeks ago, but local producers again state that the trend is un-

doubtedly upwards. Warehouse trade continues to show a slight improvement, and there are indications of a better movement in industrial circles. Unchanged price levels are:

BAR IRON—

Common bar iron, 100 lbs.	3 35
Refined iron	4 85
Irish finish machinery steel	3 40
Mild steel	3 35
Single reeled machinery steel	5 25
Band steel	3 85
Spring steel	7 00
Sleighshoe steel	3 35
Tire steel	3 55
Harrow tooth steel	3 50
Toe caulk steel	4 25
Mining tool steel, per lb.	0 19
Black Diamond tool and cast steel per lb. 0 19	

NOTE—Refined iron is approximately \$1.50 per 100 lbs. over base, but fluctuates owing to unsettled market.

Band steel in scroll bundles, 50c per 100 lbs. extra.

REVISED DISCOUNTS ON WROUGHT NIPPLES

Montreal.

Following a general revision in other cast iron and malleable fittings two weeks ago is a price increase on wrought iron nipples. The change in discounts is five per cent. on all sizes, and following are revised quotations:

PIPE FITTINGS—

Cast iron fittings	22%
Plugs, cast iron	22%
Do., solid	22%
Do., countersunk	22%
Bushings, cast	25%
Do., malleable	25%
Unions	40%
Flanged unions	22%
Flanged fittings	27½%
Dart unions, black, ½ to 2 in.	33½-3%
Do., ½ in., 2½ in., and larger	23%
Do., galv. add to black	30%
Nipples, ½ to 4", close and short	50%
Do., long	55%
Do., 4½ to 8", close and short	40%
Do., long	45%
Couplings, 4" and under	25%
Do., 4½" and larger	5%

Malleable Fittings—

Piece list effective June 1st, 1922. Discount 68 per cent.

FIRM TREND CONTINUES ON PRIMARY SHEETS

Montreal.

The upward tendency in sheet markets is still evident, quotations on Canada plate showing an increase of twenty-six cents per box. Bookings on import in these products have in many cases been taken care of, and the present increase is made on warehouse stocks. Tinplate and turn plate quotations remain at recent revisions.

While local price levels on galvanized and black sheets are nominally unchanged, a very strong tone remains on primary markets. In certain quarters on American markets it is noted that the trend is decidedly upward as the weeks pass, and although larger interests have not yet announced increased values, it is felt that such a development is not unlikely in the near future. This move has been taken by British manufacturers overseas, and the situation there is little changed, firmness still existing. The opinion among local distributors is unanimous that if the present season was a more active one for sheets, higher prices would now be ruling. It is also predicted that with an improvement in sales during the coming weeks, the required factor for higher

prices will be given. At present, following are nominal quotations:

BLACK SHEETS—

10 gauge, base	4 25
12 gauge	4 35
14 gauge	4 45
16 gauge	4 55
18—20 gauge	4 80
22—24 gauge	4 85
26 gauge	4 90
28 gauge	5 10

GALVANIZED SHEETS—

	Queen's Head	Fleur de Lis
28 gauge	7 25	7 00
26 gauge	7 00	6 75
24 gauge	6 70	6 45
22 gauge	6 65	6 40
18—20 gauge	6 40	6 15

Other Brands—

10% oz.	7 00	—
28 U. S. base	6 50	—
26 U. S. base	6 25	—
24—22 gauge	6 10	—
20—18 gauge	5 90	—
16 gauge	5 75	—

Above prices are for ½ ton lots in English iron and 1000 lb. lots in American iron with an extra charge of 25c. for less quantities. Extra for sheets 3 ft. wide, 28 gauge and 10½ oz., 25c. per 100 lbs. Further extra for sheets 4 ft. wide according to gauge.

CORRUGATED SHEETS—

	Per 100 Sq. Ft.
No. 28 gauge	6 50
No. 26 gauge	7 00
No. 26. U. S. gauge	8 00
No. 24 gauge	9 00
No. 22 gauge	11 00
No. 20 gauge	12 50
No. 18 gauge	16 50

Less 10 per cent.

Lighter than 24 gauge and wider than 27 inches, 75c. per square extra.

TIN PLATE—

20 x 28 x 100 lb. basis	14 00
20 x 28 IC, 112s	14 50
20 x 28 IX, 112s	16 00
20 x 28 IXX, 56s	9 50
20 x 28 IXXX, 56s	11 00

TERNE PLATE—

20 x 28 IC, 112s, 200 lb.	13 25
20 x 28 IC, 112c, 214 lb.	13 75

CANADA PLATE—

Half bright 52s	5 20
Half bright 60s	5 25
Blued 52s	5 30
Welsh, polished, 52s	6 70
Welsh, polished, 60s	6 95
Galvanized 52s	7 50
Galvanized 60s	7 75

RANGE BOILER PRICES FIRM BUT UNCHANGED

Montreal.

Although range boilers are not included in the list of galvanized goods shown at higher figures this week, the undertone of the market remains in a very firm position. One manufacturer stated that increased quotations were certainly warranted, but there had been a certain amount of unsettlement in the sale of these products, and any change upwards was deferred, for the present at least. In this connection, it is now noted that distributors who were formerly quoting a slight recession in prices have adjusted discounts off standard list prices, and net quotations are on a more uniform basis. List and discounts are:

RANGE BOILERS:—

5 Gallon	\$13.50
12 "	14.00
18 "	15.00
25 "	16.50
30 "	17.50
35 "	20.50
40 "	22.75
52 "	38.00
66 "	60.75
82 "	74.00
100 "	103.00
120 "	117.00
144 "	164.00
168 "	187.00
192 "	210.00

Std., less 40 per cent.; Ex. Heavy, 30 per cent.

BAR SOLDER PRICES ADVANCED ONE CENT PER POUND

Montreal.

All grades of bar solder are advanced one cent per pound, and wire solder one-half cent, on the local market. This is the second revision upwards on these products in recent weeks. Tin on primary markets is still in a very firm market position, while, as expected, spelter has regained its former strength. Lead is reported a little steadier, after continued advances, and the opinion is expressed that the peak has been reached on the present movement. Following are prevailing quotations:

LEAD AND ZINC PRODUCTS—

Lead pipe, per 100 lbs., up to 2"	14 00
Do., 2" to 8"	15 00
Do., 8" and over	16 00
Lead waste, per 100 lbs.	15 00
Note—Lead pipe is subject to a discount of 10%	
Lead trunks and bends	15%
Lead wool, lb.	0 14½
Lead sheets, 2½ lbs., sq. ft. lb.	0 12
Lead sheets, 3 to 3½ lbs., sq. ft. lb. . . .	0 11¼
Do., 4 to 8 lbs., sq. ft. lb.	0 11
Cut sheets, ¼c. lb. extra and cut sheets to size, ¾c. lb. extra.	
Solder, guaranteed, lb.	0 28
Do., strictly, lb.	0 25
Do., commercial	0 24
Do., wiping, lb.	0 24
Do., wire, lb.	0 38½
Zinc, sheets, casks	0 11
Do., broken lots	0 12

HIGHER PRICES QUOTED ON BOILER TUBES

Montreal.

Following a firm undertone in the market, quotations on boiler tubes now show a revision, sizes from 2 inch upwards being advanced about 5 per cent. Both seamless and lapweld tubes are affected by the change, and local dealers state that with a general firming tendency in mill centres the question of deliveries must still be considered. As in other iron and steel products, producers are faced with rising values in raw material and fuel costs. The movement of tubes is slightly improved, and should continue to show a betterment as the season advances. Following are revised prices:

BOILER TUBES—

	Seamless	Lapweld
1 inch	20 00	—
1¼ inch	22 00	—
1½ inch	21 00	—
1¾ inch	24 50	24 00
2 inch	21 50	20 00
2¼ inch	24 50	23 00
2½ inch	29 00	24 50
3 inch	34 00	31 00
3½ inch	39 50	35 50
4 inch	50 00	45 00

Prices, per 100 ft., f.o.b. Montreal.

REVISED DISCOUNTS QUOTED ON STOCKS AND DIES

Montreal.

Higher quotations are shown on Bull Dog stocks and dies through changing the discount to 12½ per cent. These were formerly quoted at 20 per cent. off list prices.

GRADUAL BUT STEADY IMPROVEMENT IN SCRAP

Montreal.

Dealers in scrap materials describe the market as showing a slow but steady improvement. Consumption for the most part is still of a hand-to-mouth nature, but gradually growing. Yellow and red metals are, if anything, a little more ac-

tive than other lines. There is a fairly firm tone in both markets, rubber scrap continuing stronger in sympathy with advances made in crude rubber circles.

COTTON WASTES CONTINUE ON FIRM BASIS

Montreal.

There is still a firm undertone in the market for cotton wastes, and, according to one local manufacturer, if the present tendency continues there are chances of a further revision at a little later date. Raw cotton in primary circles is fluctuating with a strong tone still pre-

sent. Quotations remain at the revision of last month, as follows:

COTTON WASTES—	Per lb.
Cream polishing	0 21
White, XXX extra	0 18
White, XX grand	0 17
White XLGR	0 16
X Empire	0 14½
X Press	0 13
Colored—	
Fancy	0 15
Lion	0 13½
Standard	0 12
Popular	0 10
Keen	0 08
Wool Packing—	
Arrow	0 25
Axle	0 21
Anvil	0 17
Dominion Wipers—	
White cotton	0 18
Colored cotton	0 13

pointed out that any change in price in boilers will be upward. The prevailing list is given below.

RANGE BOILERS—

Size.	List Price
5-gallon	\$13 50
12 to 15 gallon	14 00
18-gallon	15 00
25-gallon	16 50
30-gallon	17 50
35-gallon	20 50
40-gallon	22 75
52-gallon	38 00
66-gallon	60 75
82-gallon	74 00
100-gallon	103 00
120-gallon	117 00
144-gallon	164 00
168-gallon	187 00
192-gallon	210 00
Discounts, Standard weight, 40 per cent.	
Extra heavy, 30 per cent.	

Toronto Markets

TORONTO, February 17.—The markets in all lines of plumbing, heating and sheet metal goods have been consistently firm for some time and indications point to a steady maintenance of prices at least at present levels. Each week has brought its changes in quotations, with a great majority of them higher and this week is no exception. The firm trend of the iron primary market has resulted in an advance in wrought iron pipe and nipples, pipe showing an average advance in price of 5 per cent and nipples by a reduced discount, about the same advance. Galvanized sheets have also reflected the firm tone noted in a recent issue of Sanitary Engineer and while there is still a variation in local quotations, the majority of distributors are maintaining the higher price. General hardware, enamelled ware and tinsmiths' sundries have advanced from 2 to 5 per cent. in the last week and putty prices were moved up 50c per hundred lbs.

The recent firmness noted in primary markets have been reflected in the quotations on practically all galvanized iron products. Corrugated sheets are now quoted 50c per hundred square feet higher, galvanized shingles and galvanized sidings 25c per hundred square feet in advance of recent quotations and eavestrough and conductor pipe are advanced 10% over old levels. These prices go into effect March 1st.

Recent reports were to the effect that an advance had been put into effect on range boilers but local quotations have not been changed. Asbestos products are also among the lines on which a firm trend is reported and future developments in quotations are predicted.

Manufacturers report a steady improvement in business and many local plants are reported running to capacity.

NEW DISCOUNTS NOW IN EFFECT ON WROUGHT NIPPLES

Toronto.

By a lowering of discounts on wrought nipples an increase of 5 per cent. has become effective. The new discounts now in effect are given below.

NIPPLES, WROUGHT—

Close and short, 4 in. and under, 50 per cent., 4½ and larger, 40 per cent; long, 4 in. and under, 55 per cent; 4½ in. and larger, 45 per cent; running thread, 4 in. and under, 30 per cent.

NO PRICE DEVELOPMENTS RECORDED IN FITTINGS

Toronto.

Although prices of iron pipe and nipples have undergone an upward revision, no new developments of a similar character have affected fittings prices. The recently revised discount on malleable fittings from 70 to 68 per cent. is the last

change noted in this line. Below is the list in effect to date.

FITTINGS—	Mont.	Tor
Cast iron fittings.....	27	22
Malleable bushings	30	25
Cast bushings	30	25
Unions	45	40
Flanged unions	27	22
Plugs, cast iron	27	22
Couplings, 4 in., and under.....	25	25
Do., 4½ in. and larger.....	5	5

MALLEABLE FITTINGS—

New piece list adopted June 1, 1922. Discount, 68 per cent.

REVISION IN RANGE BOILER PRICES LOOKED FOR

Toronto.

A revision in range boiler prices is being looked for following the firmness in the galvanized sheet market, noted in a recent issue of Sanitary Engineer. From recent reports on basic markets this firmness is still in evidence and it is

CORRUGATED SHEETS ADVANCED IN PRICE

Toronto.

Galvanized corrugated sheets have reflected the recent upward trend in primary markets noted in Sanitary Engineer and an advance of 50c per hundred square feet is announced in the price of this product. Galvanized shingles and galvanized sidings are both advanced 25c per hundred square feet and galvanized flat roofing prices are increased 75c per hundred square feet. Below is the list to be in effect on corrugated sheets on March 1st.

No. 28 gauge	7 00
No. 26 gauge	7 50
No. 24 gauge	9 50
No. 22 gauge	11 50
No. 20 gauge	13 00
No. 18 gauge	17 00

Less 10 per cent.

Lighter than 24 gauge and wider than 27 inches, 75c. a square extra.

ENAMELED WARE PRICES MAINTAINED ON A STEADY BASIS

Toronto.

Current prices on enameled baths, lavatories and sinks have remained on a steady basis for some time. Business in this line is said to be satisfactory and in most cases considerably in excess of the same period last year. No price changes are looked for in the immediate future although the market tendency is distinctly firm.

ENAMELED WARE—

Enameled Iron Baths, 3" roll rim, 4 ft., 4 ft. 6 in., 5 ft.....	51 40
Do., 5½ ft.	57 10
Lavatories—	
17x10" Apron F139 or P4045	15 30
18x24" Apron F154 or P3845 or P3847	23 60
18x21" Apron F169 or P4206.....	17 60
18x21" Roll Rim, F197, F199 or P4656-6	15 40
17x19" Roll Rim, F241 or P4345	12 60
Sinks, Roll Rim, 16x24 in.....	18 10
Do., 18 x 30 in.	23 00
Do., 20 x 30 in.	24 70
Sinks, Flat Rim—	3 only 2 only 1 only
16x24	\$7 60 \$7 70 \$7 80
18x30	8 60 8 60 8 70
20x30	9 70 9 80 9 90
Above prices, list, less 33 1-3 per cent.	

BRASS AND NICKEL PLATED COMPRESSION GOODS ARE ACTIVE

Toronto.

The prices on brass and nickel plated compression goods has shown no change this week. The recently advanced price on American markets has not been reflected in local circles to date. The movement in this line is reported in excess of last year and Sanitary Engineer

was informed by a local manufacturer that whereas it is not usually necessary to operate their plant on Saturday morning, they have been obliged to keep it going for the past three weeks. The outlook for spring business in all brass and nickel plated compression goods is described as good, the list remains as given below.

COMPRESSION GOODS—

Compression work, standard	45%
Fuller work, standard	30%
Quick opening compression bibbs	45%
Bath cocks, compression	41%
Jenkins iron body, gate	25%
Bath cocks, quick opening	41%
Basin cocks, quick opening	46%
Flatway stop and waste cocks, standard	56%
Roundway stop and waste cocks, standard	56%
Brass steam cocks, standard	50%
Radiator valves, standard	55/25%
Do., removable discs	55/25%
Globe, angle and check valves, standard	25%
Gate or straightway	25%
Emco Globe valves	33%
Emco check valves	33%
Jenkins gate or straightway	16%
Jenkins iron body, globe and angle	15%
Jenkins Globe, angle, check and swing check	10%
Jenkins iron body, gate	25%

EAVESTROUGH AND CONDUCTOR PIPE PRICES ADVANCED

Toronto.

The firmness noted in recent issues of Sanitary Engineer has been borne out by another increase in price of 10 per cent. on eavestrough and conductor pipe. The former discount from the list price was 70 per cent., this has now been reduced to 60 per cent. as shown below, the advance to take effect March 1st.

TROUGH (EAVE)—

O. G. Square Bead—		Per 100 ft.	
8 inch	15 90	15 inch	34 50
10 inch	17 70	18 inch	44 00
12 inch	21 20		
O. G. Round and Half Round		Per 100 ft.	
8 inch	16 50	15 inch	35 50
10 inch	18 70	18 inch	45 00
12 inch	22 20		
Less 60 per cent.			

PIPE (CONDUCTOR)—

Plain, round or corrugated.		Per 100 ft. in 10 ft. lengths	
2 in., in 10 ft. lengths, list		13 40	
3 in., in 10 ft. lengths, list		22 30	
4 in., in 10 ft. lengths, list		29 60	
5 in., in 10 ft. lengths, list		48 00	
6 in., in 10 ft. lengths, list		58 80	
Less 60 per cent.			

ELBOWS (CONDUCTOR)—

2 inch, list	5 25
3 inch, list	6 00
4 inch, list	10 50
5 inch, list	24 00
6 inch, list	29 00
Less 60 per cent.	

SOIL PIPE CONTINUES ACTIVE WITH NO PRICE CHANGE NOTED

Toronto.

No change has been announced in the price of soil pipe fittings for the present. The anticipations for an active season in this line are gradually materializing and local distributors report prospects for spring business to be bright. Below is the list of discounts covering soil pipe and fittings.

SOIL PIPE—

2 inch	Less 33 1-3%
3 inch	Less 33 1-3%
4 inch	Less 33 1-3%
5 and 6 inch	Less 33 1-3%
3 inch	net

FITTINGS—

3 inch fittings	net.
2 to 6 inch	Less 45 per cent.

CONTINUED UPWARD PRESSURE NOTICEABLE IN GALVANIZED SHEET PRICES

Toronto.

The firmness noted in the quotations on galvanized sheets, in a recent issue of Sanitary Engineer is having an effect on quotations on this product. There is a slight variation in prices quoted in local quarters but the upward trend is favored in most cases. It has been stated that European iron has not been plentiful in local markets for some time and the domestic product has been booked ahead to such an extent that present deliveries are retarded.

GALVANIZED SHEETS—

	Premier and Apollo	
10 3/4 oz.	6 65	
U. S. 28 base	6 25	6 50
U. S. 26 base	5 95	6 20
22 and 24	5 80	6 05
18 and 20	5 65	5 90
16	5 50	5 75
12 and 14	5 35	5 60
Queen's Head		
28 gauge base	7 15	
26	6 75	
24	6 45	
22	6 30	
Fleur de Lis		
28 gauge, base	6 90	
26	6 50	
24	6 20	
22	6 05	

An extra 40c. per 100 lbs. is charged for Keystone and Premier bands copper-bearing sheets. An extra is now charged on galvanized sheets. 10 3/4 oz. and 28 ga., when shipped out in sheets 3 feet wide. The extra charged over prices shown in 20c. per 100 pounds.

IRON PIPE LIST TAKES CHANGE IN UPWARD DIRECTION

Toronto.

Wrought iron pipe prices have again been revised in an upward direction following the steady advance in basic markets. The new list which supersedes list number 57 is given below.

WROUGHT PIPE

Price List No. 57.		February, 1922.	
Standard Butt Weld Pipe S. C.		Steel	
		Blk.	Gen. Wrot. Iron
			Galv. Blk. Galv.
Size			
1 1/2 in.	6.00	8.00	9.42
2 in.	4.14	6.12	7.38
2 1/2 in.	4.14	6.12	7.38
3 in.	5.27	6.72	7.57
3 1/2 in.	6.44	8.05	9.20
4 in.	9.18	11.56	13.26
4 1/2 in.	12.42	15.64	17.94
5 in.	14.85	18.70	21.45
5 1/2 in.	19.98	25.16	28.86
6 in.	31.59	39.78	
6 1/2 in.	41.31	52.02	
7 in.	53.35	66.24	
8 in.	63.22	78.48	
Standard Larwell Pipe S. C.		Per 100 feet.	
		Steel	Gen. Wrot. Iron
		Blk.	Galv. Blk. Galv.
Size			
2 in.	23.81	28.49	32.19
2 1/2 in.	34.52	42.71	48.56
3 in.	45.14	55.85	63.50
3 1/2 in.	54.28	67.16	76.36
4 in.	64.31	79.57	90.47
4 1/2 in.	74.93	92.71	110.00
5 in.	87.32	108.04	129.15
6 in.	113	140	167
7 in.	148	183	214
8 in.	155	193	225
9 in.	179	222	259
10 in.	217	269	
10 1/2 in.	242	250	291
12 in.	260	321	375

Standard Larwell Pipe S. C.		Per 100 feet.	
		Steel	Gen. Wrot. Iron
		Blk.	Galv. Blk. Galv.
Size			
2 in.	23.81	28.49	32.19
2 1/2 in.	34.52	42.71	48.56
3 in.	45.14	55.85	63.50
3 1/2 in.	54.28	67.16	76.36
4 in.	64.31	79.57	90.47
4 1/2 in.	74.93	92.71	110.00
5 in.	87.32	108.04	129.15
6 in.	113	140	167
7 in.	148	183	214
8 in.	155	193	225
9 in.	179	222	259
10 in.	217	269	
10 1/2 in.	242	250	291
12 in.	260	321	375

A DECIDED ADVANCE IN INGOT METALS

Toronto.

Bar solder has reflected the recent price advances on basic metals and a raise of .01c per lb. is announced. In

ingot metals there is again a decided advance effecting copper, tin and lead.

SOLDER—

Wire, lb.	0 32
Strictly, lb.	0 24 1/2
Guaranteed, lb.	0 27 1/2
Commercial, lb.	0 26
Wiping, lb.	0 24 1/2

CLOSET COMBINATIONS AND BOWLS REMAIN UNCHANGED

Toronto.

No changes are reported in the prices governing closet combinations, bowls, tanks and seats. Local trade in these lines is said to be moderately good and in excess of last season. The recent reduction in price in closet combinations and tanks has been adopted in outside markets corresponding with the recently revised list given below.

CLOSET COMBINATIONS—		Each
Oak, Wood Tank, Oak W. S. Seat and Cover	24 00	
Oak Vitro Tank, Oak W.S. Seat and Cover	24 00	
Oak Pussyfoot Tank, Oak W.S. Seat and Cover	24 00	
Oak Wood Tank Oak P.H., Seat and Cover	24 50	
Oak Vitro Tank, Oak P.H. Seat and Cover	24 50	
White Vitro Oak Woodstrip Seat and Cover	24 50	
White Pussyfoot Oak Woodstrip, Seat and Cover	25 50	
White Pussyfoot, Woodstrip Seat and Cover	25 50	
White Vitro Tank, Mahog., P.H. Seat and Cover	26 50	
White Pussyfoot, Mahog., P.H. Seat and Cover	26 50	
White Vitro or Pussyfoot, oak, P.H. Seat and Cover	26 00	
Mahog. Pussyfoot, Mahogany P.H., Seat and Cover	27 00	
Vitreous China Tank, Oak P.H., Seat and Cover	27 00	
Enam. Iron Tank, Oak P.H. Seat and Cover	28 75	
Vitreous China Tank, Mahog., P.H. Seat and Cover	29 00	
Enam. Iron Tank, Mahog., P.H., Seat and Cover	28 75	

ADDITIONS OR REDUCTIONS ON ABOVE—

If supplied less bend or offset, deduct...	0 50
If supplied with reverse trap bowl, add	1 50
If supplied with BOT Reverse Trap bowl Add.	2 25
If supplied with plain syphon jet bowl Add.	7 00
If supplied with N.P. stock cock on supply Pipe, Add.	1 50
If supplied less brass and rubber floor flange and bolts, Deduct	0 60
If supplied less bend or offset, deduct.	0 50
If supplied less N. P. supply pipe deduct	0 70

CLOSET BOWLS—

Washdown bowl with spud	10 60
Reverse trap bowl, with spud	12 10
Syphon jet bowl, with spud	17 00
"Richelieu" bowl	10 50

CLOSET TANKS—LOW DOWN—

Oak wood, Tank and inside fittings with bend and supply	13 20
Mahog. Wood Tank, and inside fittings with bend and supply	15 40
Oak Vitro or Pussyfoot Tank and inside fittings with bend and supply	13 45
White Vitro or Pussyfoot Tank and inside fittings with bend and supply	13 40
White Enam. Tank F-585 or P.9262, or White Vitreous China Belmeade Tank with fittings (as above)	18 00

CLOSET SEATS—

Oak Rich. Seat and Cover to wall	3 50
Oak Woodstrip Seat and Cover with bolts	3 50
Oak Woodstrip Seat less Cover with bolts	2 90
Oak Post Hinge Seat and Cover	3 85
Mahog. Fin. Post Hinge Seat and Cover	4 75

GOOD VOLUME OF TRADE IN BOILER TUBES

Toronto.

Current business in boiler tubes is described as very good for this time of the year, with a distinct upward tendency recorded in both primary and domestic markets. No price changes have been made, however, from recent price lists, but the current levels shown below

(Continued on page 36)

How's this for a test?

This *actual Photograph* shows a "LITTLE GIANT" Pipe Wrench turning a pipe $\frac{1}{4}$ inch from a wall. A pipe almost inaccessible to the ordinary pipe wrench.

Notice the firm positive grip -- Notice that almost a half turn can be made without "ratcheting."

Wouldn't you find this wrench handy a dozen times a day?
You would.



One thing more—

No matter how "handy" the "LITTLE GIANT" might be if it didn't have "guts" it wouldn't make a friend in the world.

But it has! It has only three parts- handle, jaw and nut -none of the pins, springs, frames, etc. that are always breaking in the ordinary wrench.

Uncle Sam says 14 inch wrenches must withstand stresses of 2,800 inch pounds. The 14 inch "LITTLE GIANT" has repeatedly tested over 4,700 inch pounds without bending or weakening. It is made to stand rough treatment. Prove out the "LITTLE GIANT" by actual trial. Get one through your regular source of tool supply or write us direct.

Little Giant

PATENTED FEBRUARY 4, 1913

IT GETS INTO THE CORNERS

G GREENFIELD **T** TAP AND DIE **D**
CORPORATION
OF CANADA, LIMITED GALT, ONTARIO

are stated to represent replacement values. Distributors also state that they would be justified in raising prices to correspond with the present upward trend of the markets. Basic conditions in the United States are described as strong, and while the demand is not unusually heavy, certain physical conditions prevailing in mill centres affect operation and delivery. Following are current local boiler tube quotations:

BOILER TUBES—

	Seamless	Lapweld
¾ inch	19 00	....
1 inch	20 00	....
1¼ inch	22 00	....
1½ inch	24 00	....
1¾ inch	24 00	23 00
2 inch	22 00	19 00
2¼ inch	24 00	21 50
2½ inch	27 00	23 50
3 inch	34 00	28 50
3½ inch	36 00	33 00
4 inch	38 00	32 00
4 inch	50 00	42 00

Winnipeg Markets

WINNIPEG, February 17.—The upward trend is still evident in local markets. Steam and water radiators are advanced in price, revised discounts are in effect on boiler elbows and couplings and cast iron fittings reflect the firmness evident in primary sources. There is also a firm trend noted in cotton waste and soil-pipe and fittings.

STEAM AND WATER RADIATORS AT HIGHER LEVELS

Winnipeg.

There is a revision in discounts on steam and water radiators. Two and four column steam radiators are quoted at less 44 per cent. off list price, and water radiators at less 43 per cent.

WALL RADIATORS SHOW UPWARD TREND

Winnipeg.

Wall radiators of both water and steam have shown an upward trend in price. Hospital radiators as well have also moved upwards. Wall radiators are quoted at list price less 40 per cent. and steam hospital radiators at list price less 36 per cent. and water at 35 per cent. Wall radiator brackets are quoted at net list price, while radiator buttons are quoted at less 10 per cent. off list price.

REVISION IN PRICE ON BOILER ELBOWS AND COUPLINGS

Winnipeg.

There is a revision in quotations on boiler elbows and couplings and latest discounts are 50 and 5 per cent. off list price. Unions show a revision and are quoted at 35 per cent., while Jefferson unions are quoted at 20 per cent. off list price.

CAST IRON FITTINGS AT REVISED QUOTATIONS

Winnipeg.

Cast iron fittings, including elbows, tees, crosses, return bends, caps and lock nuts, show a revision in discounts of 15 per cent. off list price. Reducers and eccentric reducers are quoted at the same discount. Bushings are quoted

FIRM TREND REPORTED IN ASBESTOS PRODUCTS

Toronto.

There has been no change reported in the quotations on asbestos air cell pipe covering, asbestos boiler covering or asbestos paper. It is pointed out however that a very firm trend is in evidence in primary sources and that under existing circumstances there is no possibility of any reductions in this line but that higher levels may be looked for. Below is a list of the quotations in effect.

ASBESTOS PRODUCTS—

Pipe Covering—	
Air cell, 4 ply	50 per cent. off list.
Air cell, 3 ply	55 per cent. off list.
Air cell, 2 ply	57½ per cent. off list.
Boiler Covering	\$1.50 — \$2.00 per bag.
Asbestos Sheathing	\$8.00 per 100 lbs.
Magnesia pipe covering	less 35 per cent.

FIRMNESS IN SOIL PIPE MARKET

Winnipeg.

Firmness is described as prevailing in the trend of soil pipe fittings. The market remains with a steady tone and although trading is quiet at the present time, indications are for increased activities with the approach of spring and summer.

STRONG TONE TO COTTON WASTE

Winnipeg.

There is a strong tone to the cotton market and quotations on cotton waste are ruling firm. The following lines are quoted as follows:

COTTON WASTE—

Full bales, per 100 pounds	17 25
Broken quantities	0 18½
10 pound packages	0 20
R.E.M. Full bales 100 pounds	20 00
Broken quantities	0 21

COLORED COTTON—

Full bales 100 pounds	14 75
Broken quantities	0 15¾

WOOL WASTE—

100 pounds	20 00
Broken quantities	0 21

RURAL SEWAGE DISPOSAL SYSTEM

(Continued from page 19)

and the results are available, there does not appear to be any logical reason why such information based upon such experience should not be taken advantage of and followed out.

Why Cultivating Chamber Must Be Larger

It is estimated that when sewage enters the first or cultivating chamber, that it requires from 36 to 48 hours to allow the anaerobic bacteria to digest, or break down the solids. This being the case, the raw sewage requires to be held back for a rather longer period than is required to permit the fluid, (which may be charged with anaerobic bacteria) to be freed from undigested sewage in suspension, and once the period of say 36 to 48 hours has elapsed, the effluent is more than likely to be ready to discharge up and through the centre pipe, previously shown on septic tank designs and known as fitting number 2.

That is the reason why the cultivating chamber must be larger than the dosing chamber. The writer has been asked what objections there would be to having both tanks the same depth. The fact that the syphon discharges when the sewage has reached a height of 17 inches would mean that it would be too low if placed on the bottom of a compartment the same depth as the cultivating chamber, or if both tanks were made shallow, say the same depth as the dosing chamber, the cultivating chamber would have to be too long or too wide to contain sufficient sewage, and furthermore, there would not be sufficient depth of sewage for the anaerobic bacteria to work in a vertical direction.

(Continued in next issue)

at 25 per cent. and plugs at 20 per cent. off list price. Flange union standards show a revision and are quoted at less 15 per cent. while dart flange unions are quoted at net list. Companion flanges are quoted at less 20 per cent., floor flanges at less 25 per cent., and branch tees at 15 per cent.

MALLEABLE IRON FITTINGS AT HIGHER LEVELS

Winnipeg.

Malleable iron fittings of class A, B and C are now quoted at less 55 per cent. off list price. Crossovers are quoted at less 50 per cent. off list price and union elbows and tees at less 50 and 5 per cent.

HIGHER DISCOUNT ON RADIATOR VALVES

Winnipeg.

Radiator valves and elbows show a revision in discount. Rough body radiator valves with Jenkins disc are quoted at list prices less 55 per cent. Radiator elbows are quoted at the same discount. Detroit packless radiator valves are quoted at list price less 20 per cent.

STEADY TONE TO GALVANIZED RANGE BOILERS

Winnipeg.

Since the recent advance range boilers are ruling firm and quotations are as follows:

RANGE BOILERS—(Galvanized)—	
18 ga., \$10.25; 30 ga., \$11.35; 35 ga., \$12.45;	
40 ga., \$17.05; 52 ga., \$24.60; 66 ga., \$35.30;	
82 ga., \$50.00; 100 ga., \$65.00; 120 ga., \$76.25.	
RANGE BOILERS—(Extra Heavy)—	
30 ga., \$13.50.	
Boiler Stands—	
12 in. \$2.40; 13" \$2.56; 14" \$2.64; 16" \$2.84;	
19" \$3.24; 20" \$3.74; 22" \$4.05; 24" \$4.45.	

KERR VALVES

**Iron Body, Bronze Mounted
with Outside Screw and Yoke.**

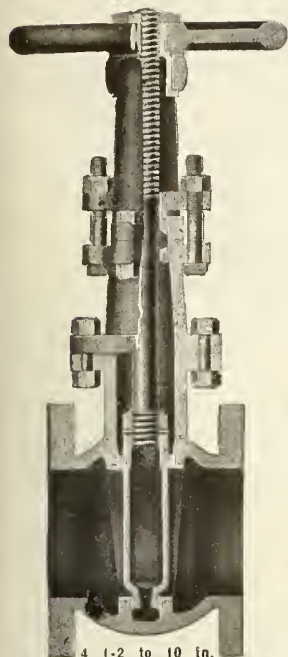
These gate valves are specially designed to comply with the requirements of the Factory Mutual Fire Insurance Companies' specifications for Sprinkler Equipment.

Bronze bushed Stuffing Boxes, and Malleable Iron Glands are employed, and stems are of the dimensions and strength required on this exacting work.

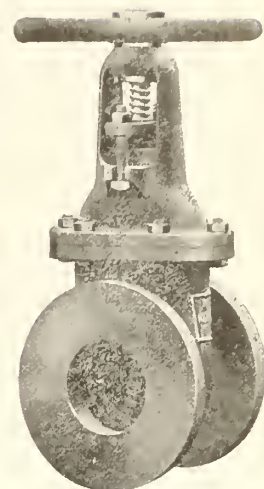
Commercial valves of our manufacture are supplied in this pattern and with this equipment, thus insuring a remarkably high class valve.

The valves are compact in design, sturdy construction, and modern throughout.

**Specify Kerr KEYSTONE Gate Valves.
Every valve tested.**



4 1-2 to 10 in.



NO. 62.
2 1-2 in. to 4 in.

The **KERR ENGINE COMPANY**
LIMITED

WALKERVILLE Valve Manufacturers

ONTARIO

Sydenham Steam Cocks



No. 58

200 lbs. pressure is the test every Sydenham Steam Cock is put under. That's your guarantee that it is:—

Well ground, making good, smooth, tight joints;

Made of good red steam metal to stand up in any usage;

Made in heavy proportions to withstand strain in installation.

Rigidly inspected.

Carried in stock in all sizes from $\frac{1}{4}$ " to 2".

Try the Sydenham on your next order

The Wallaceburg Brass & Iron Manufacturing Company, Limited

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Mr. L. N. Vanstone

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10 Victoria St., Phone Uptown 945
Mr. G. M. Price

WINNIPEG:

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**AIR COMPRESSORS**

Smart Turner Machine Co., Ltd., Hamilton, Ont.

AIR LINE SYSTEMS

C. A. Dunham Co., Ltd., Toronto.
United Brassfounders & Engineers, Ltd., Manchester, Eng.

ALUMINUM CASTINGS

Fittings, Limited, Oshawa.
Canada Metal Co., Ltd., Toronto.

AIR VALVES

Beaton & Caldwell Mfg. Co., New Britain, Conn.
W. H. Cunningham & Hill, Ltd., Toronto.
C. A. Dunham Co., Ltd., Toronto.
Empire Mfg. Co., Ltd., London and Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
J. H. Williams Co., Brooklyn, New York.
United Brassfounders & Engineers, Ltd., Manchester, Eng.
Wallaceburg Brass & Iron Mfg. Co., Ltd., Wallaceburg, Ont.
Wolverine Ltd., Toronto, Ont.

BATHS, STEEL

Steel Trough & Machine Co., Ltd., Tweed, Ont.

ATMOSPHERIC STEAM HEATING

J. E. Farrell, 210 Galley Ave., Toronto, Ont.

BATHROOM FITTINGS

Canada Metal Co., Ltd., Toronto.
Gendron Mfg. Co., Toronto.

BENDING SPRINGS

W. H. Cunningham & Hill, Ltd., Toronto.

BOILERS, STEAM OR HOT WATER

Gurney Foundry Co., Limited, Toronto.
Lord & Burnham Co., Ltd., Toronto.
Spencer Heater Co., Ltd., Toronto, Ont.
Warden King, Ltd., Montreal.

BOILER FEED PUMPS

Smart Turner Machine Co., Ltd., Hamilton, Ont.

BOILER FEED REGULATORS

Empire Mfg. Co., London and Toronto.
J. E. Farrell, 210 Galley Ave., Toronto, Ont.
C. A. Dunham Co., Ltd., Toronto.
Grant E. Cole Co., 23 River Street, Toronto.

BOILER STANDS

Fittings, Limited, Oshawa.

BOLTS, EYE

J. H. Williams & Co., Brooklyn, N. Y.

BOLTS AND NUTS

Fittings, Limited, Oshawa.

BRASS GOODS, VALVES, ETC.

Canadian Brass Co., Ltd., Galt, Ont.
Canada Metal Co., Ltd., Toronto.
C. A. Dunham Co., Ltd., Toronto.
Empire Mfg. Co., Ltd., London and Toronto.
Fittings, Limited, Oshawa.
Galt Brass Co., Limited, Galt.
Kerr Engine Co., Ltd., Walkerville.
James Morrison Brass Mfg. Co., Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
Standard Sanitary Mfg. Co., Ltd., Toronto.
Hamilton.
United Brassfounders and Engineers, Ltd., Manchester, Eng.
Wallaceburg Brass & Iron Mfg. Co., Ltd., Wallaceburg, Ont.
Wolverine Ltd., Toronto, Ont.
W. H. Cunningham & Hill, Ltd., Toronto

BRASS PIPE AND TUBE

Canada Metal Co., Ltd., Toronto.
Empire Mfg. Co., Ltd., London and Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
United Brassfounders & Engineers Ltd., Manchester, Eng.
Wolverine, Ltd., Toronto, Ont.

CASTINGS

Canada Metal Co., Ltd., Toronto.
Fittings, Limited, Oshawa.

CELLAR DRAINERS

Galt Brass Co., Limited, Galt.
Empire Mfg. Co., Ltd., London and Toronto.
James Morrison Brass Mfg. Co., Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
Standard Sanitary Mfg. Co., Ltd., Toronto, and Hamilton.

CIRCULATORS

J. E. Farrell, 210 Galley Ave., Toronto, Ont.
J. H. Williams & Co., Brooklyn, N. Y.
Grant E. Cole Co., 23 River Street, Toronto.

CHAINS

Fittings, Limited, Oshawa.

J. H. Williams & Co., Brooklyn, N. Y.

CLOSETS

Canada Metal Co., Ltd., Toronto.
Empire Mfg. Co., London and Toronto.
Galt Brass Co., Limited, Galt.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
Standard Sanitary Mfg. Co., Ltd., Toronto.
Hamilton.
Steel Trough & Machine Co., Ltd., Tweed, Ont.

CLOSETS—Chemical

Steel Trough & Machine Co., Ltd., Tweed, Ont.

CONDENSATION UNITS

C. A. Dunham Co., Ltd., Toronto, Ont.
J. E. Farrell, 210 Galley Ave., Toronto, Ont.
Smart Turner Machine Co., Ltd., Hamilton, Ont.
The Westco Pumps, Limited, Toronto.

COUNTRY RESIDENCE EQUIPMENTS

Empire Mfg. Co., Ltd., London and Toronto.
H. Mueller Mfg. Sarnia, Ont.
Smart Turner Machine Co., Ltd., Hamilton, Ont.

COUPLINGS

Canada Metal Co., Ltd., Toronto.
Fittings Limited, Oshawa.

DAMPER REGULATORS

C. A. Dunham Co., Ltd., Toronto.

DRAINAGE FITTINGS

Canada Metal Co., Ltd., Toronto.
Empire Mfg. Co., Ltd., London and Toronto.
Fittings Limited, Oshawa.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
Standard Sanitary Mfg. Co., Ltd., Toronto.
Hamilton.

United Brassfounders & Engineers, Ltd., Manchester, Eng.

Warden King, Ltd., Montreal.

DRAIN PIPE SOLVENT

W. H. Cunningham & Hill, Ltd., Toronto.
Hercules Chemical Co., Inc., New York City.

DRINKING FOUNTAINS

Canada Metal Co., Ltd., Toronto.
Empire Mfg. Co., Ltd., London and Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
Standard Sanitary Mfg. Co., Ltd., Toronto.
Hamilton.

DROP FORGINGS

J. H. Williams & Co., Brooklyn, N.Y.

EJECTORS, STEAM

Kerr Engine Co., Walkerville.
United Brassfounders & Engineers, Ltd., Manchester, Eng.

ENAMELWARE

Amherst Foundry Co., Ltd., Amherst, N.S.
Canada Metal Co., Ltd., Toronto.
Empire Mfg. Co., Ltd., London and Toronto.
Galt Brass Co., Limited, Galt.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
Standard Sanitary Mfg. Co., Ltd., Toronto.
Hamilton.

Port Hope Sanitary Mfg. Co., Ltd., Port Hope
Standard Sanitary Mfg. Co., Ltd., Toronto.

ELECTRIC PUMPING MACHINERY

Empire Mfg. Co., Ltd., London and Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
Smart Turner Machine Co., Ltd., Hamilton, Ont.

EXPANSION TANKS

Toronto Hardware Mfg. Co., Ltd., Toronto.

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Canada Metal Co., Ltd., Toronto.
Empire Mfg. Co., Ltd., London and Toronto.
Fittings Limited, Oshawa.
James Morrison Brass Mfg. Co., Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
Standard Sanitary Mfg. Co., Ltd., Toronto.
Hamilton.

United Brassfounders & Engineers, Ltd., Manchester, Eng.
Warden King, Ltd., Montreal.

FLUSHOMETERS

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Empire Mfg. Co., Ltd., London and Toronto.
Galt Brass Co., Ltd., Galt.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
Standard Sanitary Mfg. Co., Ltd., Toronto.
Hamilton.

Wolverine Ltd., Toronto, Ont.

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Beaton & Caldwell Mfg. Co., New Britain, Conn.
W. H. Cunningham & Hill, Ltd., Toronto.
Fittings, Limited, Oshawa.
Wolverine Ltd., Toronto, Ont.
Empire Mfg. Co., London and Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.

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Warden King, Ltd., Montreal.
Spencer Heater Co., Ltd., Toronto.
Hamilton Stove & Heater Co., Hamilton.
Burrow, Stewart & Milne, Hamilton.
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Vulcan Co., London, Ont.

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Empire Mfg. Co., Ltd., London and Toronto.

James Morrison Brass Mfg., Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
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Hamilton.

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Lord & Burnham Co., Ltd., Toronto.
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Warden King, Ltd., Montreal and Toronto.
W. H. Cunningham & Hill, Ltd., Toronto.

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Steel Trough & Machine Co., Ltd., Tweed, Ont.

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Fittings, Limited, Oshawa.

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Standard Sanitary Mfg. Co., Ltd., Toronto.
Hamilton.

Port Hope Sanitary Mfg. Co., Ltd., Port Hope.

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Wolverine Ltd., Toronto, Ont.

W. H. Cunningham & Hill, Ltd., Toronto.

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C. A. Dunham Co., Ltd., Toronto, Ont.

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W. H. Cunningham & Hill, Ltd., Toronto.
Healy-Ruff Company, Minneapolis, Minn.

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Canadian Tube and Iron Co., Ltd., Montreal.
Empire Mfg. Co., London and Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
Standard Sanitary Mfg. Co., Ltd., Toronto.
Hamilton.

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Empire Mfg. Co., Ltd., London and Toronto.
Hercules Chemical Co., Inc., New York City.
Wolverine, Ltd., Toronto, Ont.
W. H. Cunningham & Hill, Ltd., Toronto.

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W. H. Cunningham & Hill, Ltd., Toronto.

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Cold facts tell you plainly that only positive, reliable price information can protect you.

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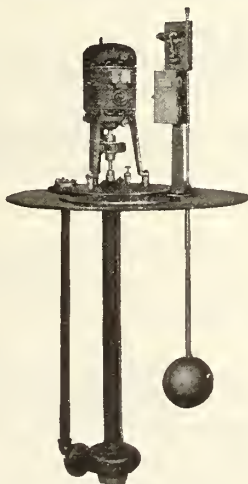
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This sewage disposal system is considered the "last word" in sanitation and efficiency.

Mr. Edwin Newsome's article in the January 1st issue of the Sanitary Engineer described the whole layout completely and vividly. The pumping equipment which he said played such an important part in the whole plan is a "CHICAGO" product.



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AMONG a plumber's best friends are his tools and, among his tools, many a plumber claims Williams' "Vulcan" Chain Pipe Vise as his best friend.

It's the **only** Pipe Vise made entirely of wrought steel. 3 sizes for $\frac{1}{8}$ to 8 in. pipe.

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Canada Metal Co., Ltd., Toronto.
Empire Mfg. Co., London and Toronto.
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Steel Trough & Machine Co., Ltd., Tweed, Ont.
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H. Mueller Mfg. Co., Limited.
Smart Turner Machine Co., Ltd., Hamilton, Ont.
The Westco Pumps, Limited, Toronto.
Beaton & Cadwell Mfg. Co., New Britain, Conn.
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Lord & Burnham Co., Ltd., Toronto.
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Healy Ruff Company.
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Fittings, Limited, Oshawa.
RADIATOR TRAPS (STEAM)
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Standard Sanitary Mfg. Co., Ltd., Toronto.
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STOVES, GAS AND COAL
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J. H. Williams & Co., Brooklyn, N.Y.
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Steel Trough & Machine Co., Ltd., Tweed, Ont.
SYSTEMS—SCHOOL
Steel Trough & Machine Co., Ltd., Tweed, Ont.
TANKS—GASOLINE
Steel Trough & Machine Co., Ltd., Tweed, Ont.

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Steel Trough & Machine Co., Ltd., Tweed, Ont.
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W. H. Cunningham & Hill, Ltd., Toronto.
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H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
Standard Sanitary Mfg. Co., Ltd., Toronto, Hamilton.
J. H. Williams & Co., Brooklyn, N.Y.
W. H. Cunningham & Hill, Ltd., Toronto.
TORCHES
W. H. Cunningham & Hill, Ltd., Toronto.
UNIONS
Canada Metal Co., Ltd., Toronto.
Empire Mfg. Co., London and Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
United Brassfounders & Engineers, Ltd., Manchester, Eng.
VAPOR HEATING SYSTEMS
C. A. Dunham Co., Ltd., Toronto.
VISES, CHAIN, CLAMP, MOUNT
J. H. Williams & Co., Brooklyn, N.Y.
VITRO TANKS
Galt Brass Co., Ltd., Galt.
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C. A. Dunham Co., Ltd., Toronto.
Smart Turner Machine Co., Ltd., Hamilton, Ont.
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Empire Mfg. Co., London and Toronto.
Jenkins Bros., Ltd., Montreal, Que.
The Kerr Engine Co., Walkerville, Ont.
United Brassfounders & Engineers Ltd., Manchester, Eng.
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Empire Mfg. Co., London and Toronto.
Smart Turner Machine Co., Ltd., Hamilton, Ont.
Standard Sanitary Mfg. Co., Ltd., Toronto, Hamilton.
Steel Trough & Machine Co., Ltd., Tweed, Ont.
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Canada Metal Co., Ltd., Toronto.
W. H. Cunningham & Hill, Ltd., Toronto.
WASHING MACHINES
Gurney Foundry Co., Ltd., Toronto.
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WROUGHT COUPLINGS AND NIPPLES
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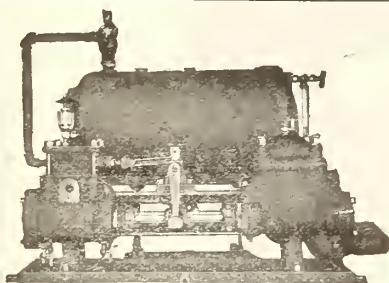


Fig. 153.

Buy Your Heating and Plumbing Machinery Direct from the Maker

You can save real money and at the same time be absolutely certain of getting what you want when you deal directly with us.

Smart Turner equipment includes Automatic Feed Pumps—both steam and motor driven, Boiler Feed Pumps, Foot Valves and Strainers, Sump Pumps, Steam and Oil Separators.

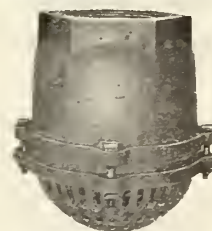
Write to-day for catalogue and prices

The Smart Turner Machine Co.

Limited

Hamilton

Canada



No. 115 Screwed Foot Valve.

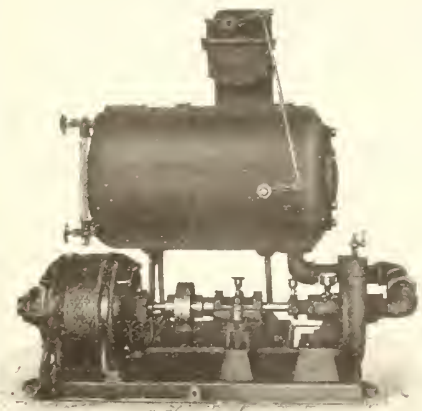


Fig. W-155.



Fig. W-202

Quality



Service

For a Satisfactory Completion Use a Floor and Ceiling Plate

A No. 10-A Narrow Flange Plate like the one illustrated is just the kind that will suit you. Steel Hinged Plate Flanges $\frac{3}{4}$ " wide.

These plates cover up all places marred by boring, etc.

Highly finished. Especially designed for twin connection "Narrow". Made in 1-2 inch to 2 inches inclusive. Has 1 inch flange made in all sizes from $\frac{1}{4}$ to 6 inches inclusive.



Gem No. 4, Automatic Air Valve.

Made of the best brass obtainable.

Equipped with high grade carbon. Guaranteed.

Catalogue sent on request.

The Beaton & Cadwell Mfg. Co.
New Britain, Conn.

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ONTARIO AGENTS: L. N. Vanstone, 8 Wellington Street E., Toronto, Canada.

WESTERN AGENTS: A. E. Hinds & Co., Chamber of Commerce, Winnipeg.

A Size to suit Every one of your Customers

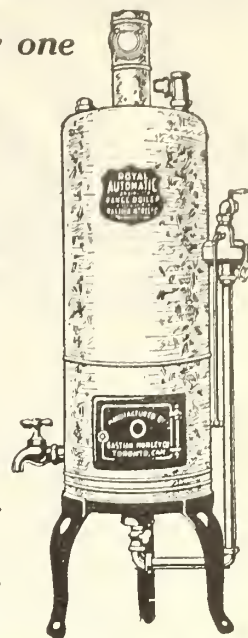
No task is too small, none too large for Royal Automatic Storage Gas Water Heaters.

Doctors, dentists, barber shops, clubs, apartments, schools, theatres, restaurants, hotels—there is a type of "Royal" to meet every need for instant hot water service.

At present low prices you can sell a Royal as easily as an ordinary heater.

Sold only by or through plumbers.

Write for full information.



Bastian-Morley Ltd.

125 Hanson Street Toronto

THE Royal

Automatic Gas Water Heaters

THE TRADE

*Is Respectfully Cautioned
to specify*

RIVETED RANGE BOILERS

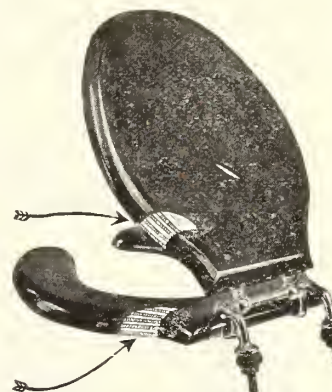
Made by the old reliable

**TORONTO HARDWARE
MFG. CO., LIMITED**

The Everlasting Veneer Toilet Seat

*Strong, Clean
Hygienic*

This reliable, dependable toilet seat is made of 7 and 9-ply, air-seasoned wood veneer, held together by our special wood cement. This cement is proof against heat, cold or dampness. The veneering is distributed according to the strain and wear required of the different parts. The Everlasting Seat will never crack, warp or split.



It is a splendid seat for use in cold, damp basements where closets must be installed. The Everlasting Toilet Seat will meet, and successfully resist, these severe conditions of moisture, changing temperature, etc.

**Canadian
Veneering Company,
Incorporated**

Acton Vale

Quebec

Wanted

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ENGLISH FIRM wishes to purchase large quantity of new and good secondhand screwed and socketed tubes, sizes 2" to 6". Also Weldless Loose Flanged Tubes. Writes "Tubes" c/o Taylors, 30 Fleet St., London, England.

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Sanitary Engineer

is the logical medium to use if you have a message for the Plumbing and Heating trade of Canada

FOR SALE

FOR SALE—PLUMBING, HEATING AND tin-smithing business, established twelve years, in one of the best cities in Western Canada. Agency for a leading line of furnaces. Sickness the only cause for selling. Box 224, Hardware & Metal, Toronto.

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Are your WANTS Supplied?

Are you looking for help?
Business for sale or to buy?
A position or an agency?
Have you anything to sell?

Any of these wants may be taken care of at small cost through the medium of Sanitary Engineer Want Ad. columns.

Read the
Want Ad. Page

Are These The Opportunities You're Looking For?

Fan Heating and Ventilating Engineering is the pinnacle of all other forms of heating, and of all branches of steam fitting and sheet metal work. It prepares you for:

1. For Employers it enlarges their business opportunities 100%.
2. Employees it raises to Foremanship of a large shop.
3. Or as Designing Engineer of some large Heating Contractor.
4. As an intelligent Salesman of Heating Appliances.
5. As Chief Engineer with a Heating or Furnace Manufacturing Co.
6. Later a Consulting Engineer to Architects and Building Contractors, etc.

Which of These Are You Working for?

Full Information Free.

Select Your Course.

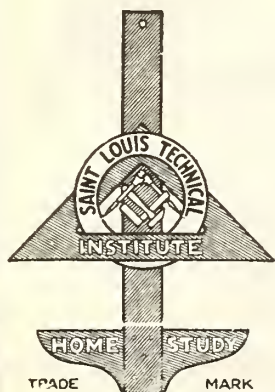
[] Fan Heating and Ventilating Engineering. [] Sheet Metal Design and Pattern Drafting.
[] Business Management, for office folks.

ST. LOUIS TECHNICAL INSTITUTE

4543 Clayton Avenue

O. W. Kothe, Prin.

St. Louis, Mo.



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Simplex Cast Iron Traps Built for Service



No. 282

Perfect
Castings
Machined
Perfect

Made in two sizes 1 1/4" and 1 1/2"

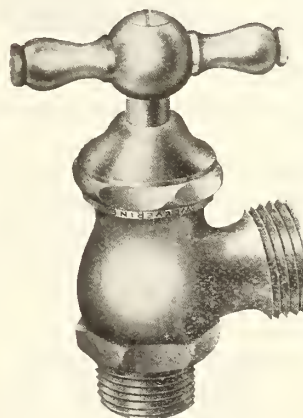
Self-Scouring Adjustable Non-Syphoning

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Boiler Drain Cocks



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Full Waterway
Heavy Body
Raised Seat
Red Fibre Seat
Washer and Bonnet
Packing
Wolverine Guarantee
of course.

It pays to have Wolverine Articles on hand for instant use

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BEAVER BRAND

Porcelain Enamel Ware

—Your Guarantee of Quality—

Beaver Brand Enamelware by its ability to meet the highest demands for service under all conditions, has established itself in the confidence of the public to such an extent that each month witnesses an ever-increasing demand for products of Beaver manufacture.

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Amherst, N.S.

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E. B. PLEWES
197 Princess St., Winnipeg



Tapped Closet Bend

Easier to attach
More permanent
Cost less



WROUGHT PIPE



Suitable for the approaching period of building activity, road construction, etc. This is a line of great importance in making successful, profitable contracts. Our C. T. Brand of Wrought Pipe has been

THOROUGHLY INSPECTED

by practical, experienced men. It is tested to 600 lbs. hydraulic pressure, and branded with our trademark. We carry this line of reliable pipe in sizes 1/8-in. to 4-in. Black or Galvanized. We also manufacture nipples and couplings, black and galvanized, in all sizes.

Ask your Jobber for C. T. Brand Wrought Pipe

Canadian Tube and Steel Products Co., Ltd.
Operating Canadian Tube and Iron Co., Limited
Works at Lachine Canal, Montreal



NO. 1 "TWEED"

Sanitary Closet with mahogany finished seat and lid with nickel-plated hinges.

The special "Tweed" chemical used in connection with the closet, destroys every trace of odor. Easily installed as no plumbing required.

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Only those who have to live the year around in a locality without city conveniences realize the hardships involved, and it is among these that you can do a profitable business with the

"TWEED" SANITARY CLOSET

A city convenience at a fraction of the cost—anybody can afford one. Compactly packed for shipment and easily handled.

We also make an attractive line of "Tweed" Baths and other home conveniences.

Write for price lists and literature.

Steel Trough & Machine Co., Ltd.

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G. M. PRICE,

10 Victoria St., Montreal.

Quebec and Eastern Representative



The Martin Portable Vise Stand

light in weight—
only fifty pounds

Can be carried anywhere without inconvenience.

Put up in two seconds; no bolts, screws or fastenings needed.

Use the Martin Portable Vise Stand where pipe or conduit must be bent, cut or threaded. 10 days free trial.

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Dart Union Pipe Couplings are
Bronze to Bronze
(Both Face and Seat)

This feature prevents deterioration at the vital point, and is the Reason Why

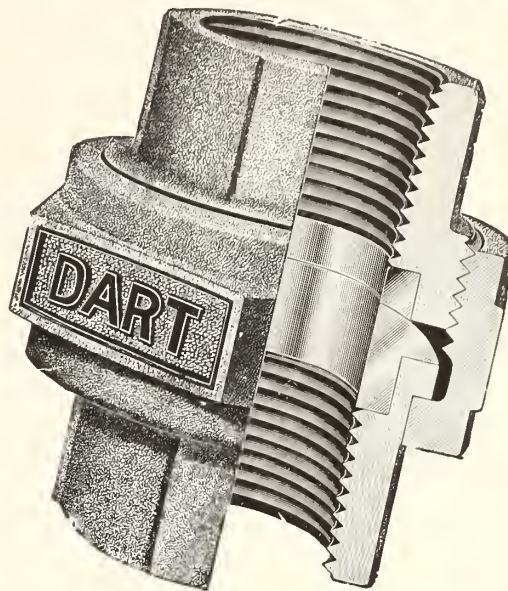
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STAY TIGHT**

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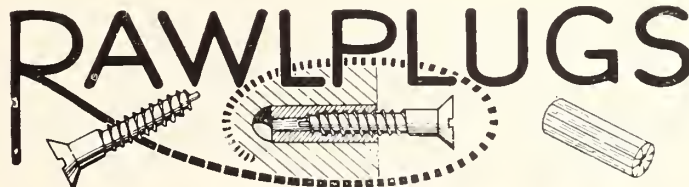
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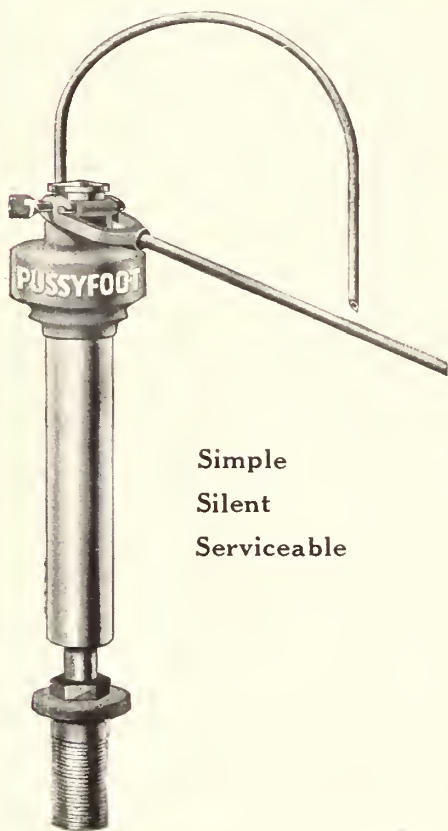
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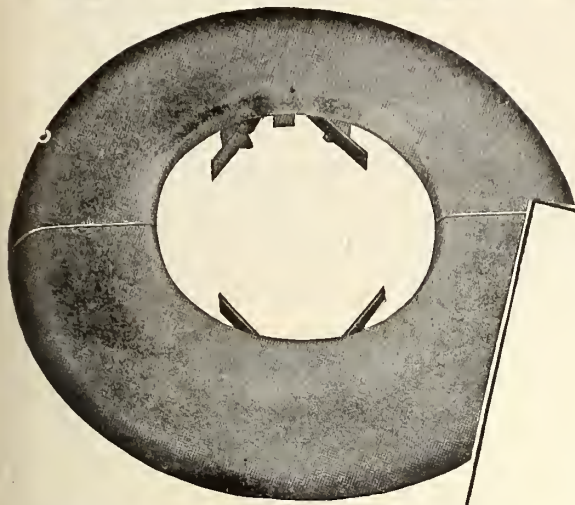
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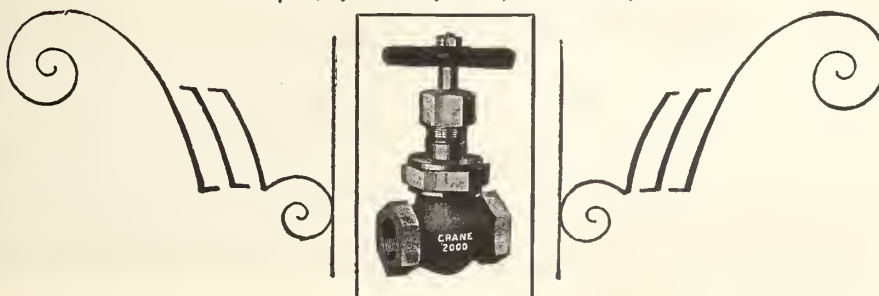
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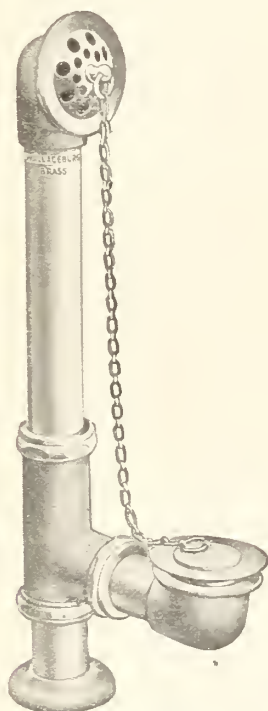
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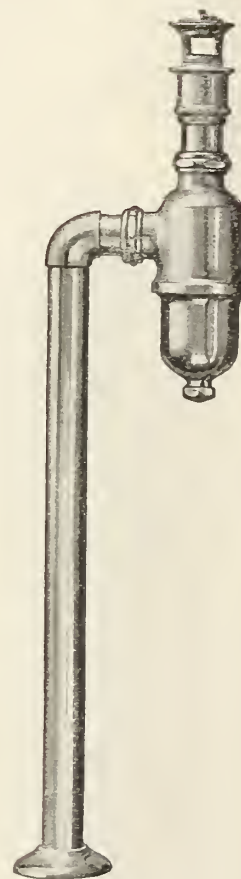
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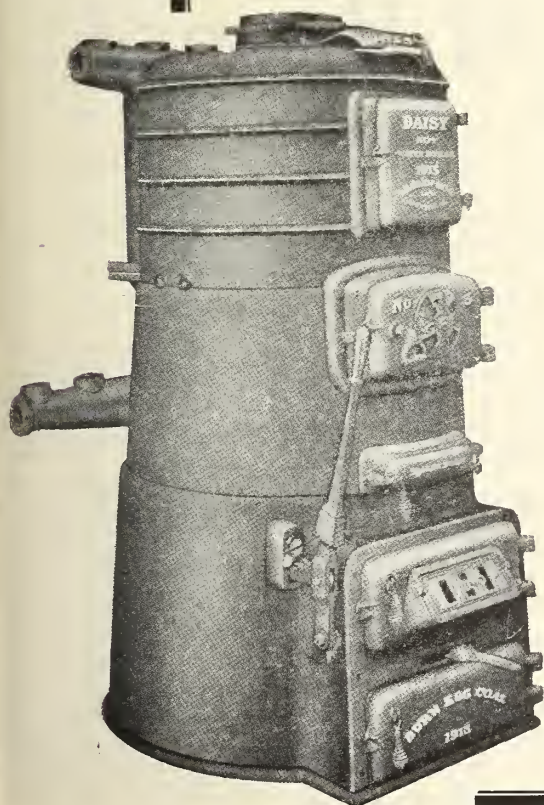
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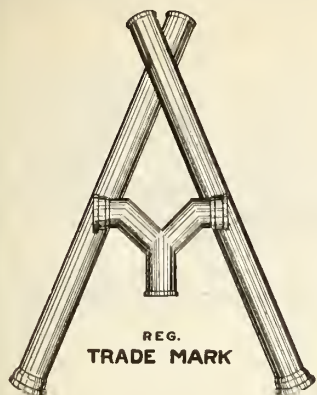
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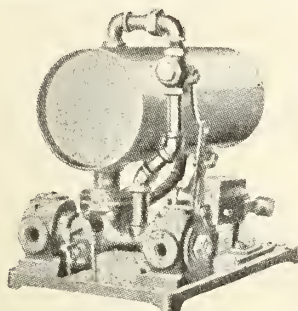
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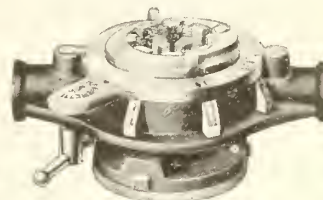
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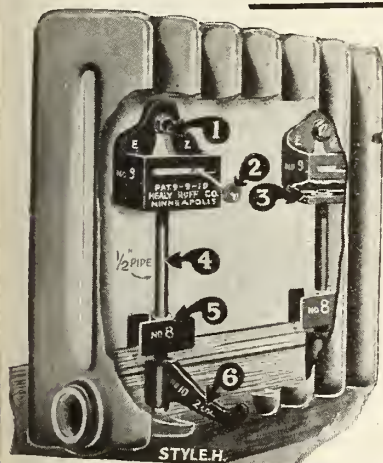
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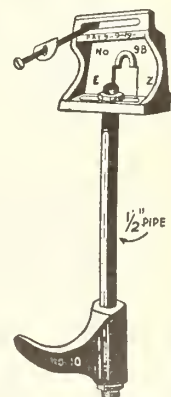
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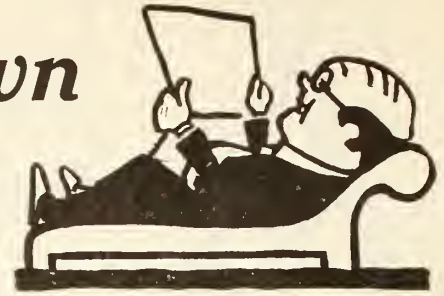
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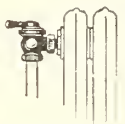
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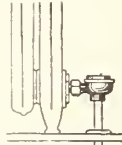
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SANITARY ENGINEER

PLUMBER AND STEAMFITTER OF CANADA

ESTABLISHED 1907

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No. 5

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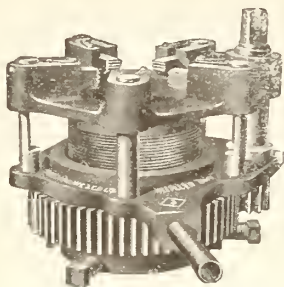
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VOL. XVII.

TORONTO, MARCH 1, 1923

NO. 5

First Installation Hardest to Get

Garth Company, Ottawa, Talk Winter Conditions Hard and Long to Farmer Prospects for Water and Sewage Systems—Farmer Will Buy Automobile in Hurry But Hesitates Over Sanitary Conveniences

SELLING the farmer on the idea of water systems and sewage disposal systems is no mean task, but like every other business proposition, there are ways and means of landing your prospect. Some very telling methods along this line have been adopted by the Ottawa branch of the Garth Company of Montreal, as outlined to Sanitary Engineer by T. E. McGrail, branch manager.

This company has been successful in the immediate past in putting across the idea of steel septic tanks in conditions where water difficulties threaten and where it is necessary to eliminate the possibility of heaving on account of clay. This system has been sold largely on the strength of its money saving possibilities. The farmer has been brought to realize that it is a cheaper proposition than others, because no concrete work is necessary.

Mr. McGrail pointed out that these tanks were being made in steel, adaptable to any condition, and in such a manner that they could be installed in basements of buildings. This was proving quite a feature, and it was the intention of his company to boost it as much as possible in rural communities.

House Canvass

When it came to a discussion of the methods of getting prospects, Mr. McGrail very emphatically stated that he favored the house-to-house canvass in preference to any other idea which might be carried out.

He did not think there was a great deal to be accomplished by sending circulars or letters. It was much more satisfactory for the contractor or trader to sit down with the farmer in his own house and tell him in the most convincing manner how he was going to benefit by the installation of modern sanitary improvements.

"I have found," said Mr. McGrail, "that if you talk winter conditions hard and long enough to the average farmer, you will win him over. A discussion of the danger of outside privies especially to his children will at first, in most

cases be met with the rejoinder: 'Well, what has been good enough for me is surely good enough for my children.' But I have found that the self-same farmer can be sold on the strength of examples of young people who are constantly leaving their rural homes for life in the city where sanitary conditions are more agreeable and healthful.

Doesn't Hesitate to Buy Car

"Very often you can 'get' your farmer prospect by drawing comparisons. And one comparison which will set him thinking is that he does not hesitate to spend a thousand dollars on an automobile, whereas for an outlay of less than half that amount he could have modern sanitary conveniences installed in his home. Where you find a farmer putting up a good building to replace the old home you have a chance of a lifetime

to sell him, and he can usually be sold on the argument that his new home will lack a great deal to make it up-to-date, through the absence of modern sanitary improvements.

Land the First One

"In districts where people live fairly close together, the big thing is to land the first installation, the remainder will come easier. That has been our experience. There is a great deal of pride among farmers and where they live close together one fellow is not overjoyed at seeing his neighbor get something he has not got."

Mr. McGrail when asked what he thought of the idea of trying to influence the farmers through the agency of the county council replied that he did not place much faith in this method for the simple reason that members of county councils, were as a rule the most difficult class of people to sell. "And if you cannot sell the councillor himself, there is little use in spending time trying to get him to influence others," he said.

Give Immediate Estimate

Speaking from the experience he had gained while representing the T. G. Griffith Company of Toronto, Mr. McGrail laid emphasis upon the necessity of giving the farmer an immediate estimate on the job. He always asked for it. Therefore it was essential that whoever went after the job, whether it be the manufacturer, the trader or the contractor, he should have a combined knowledge of estimating, installation, and the principles of water supply and sewage disposal. A good man, Mr. McGrail thought, should have little difficulty in giving an estimate on the spot.

Other plumbers with much experience in rural business have also told of the necessity of giving careful estimates to farmers. In view of the approach of the season when farmers will appreciate the value of farm sanitary equipment, now is a good time to figure on putting these suggestions into practice.



Show farmer danger to his family of outside privies.

Plumbers Discuss Raising of Standards

Committee Appointed to Draw Up Amendments to Existing Plumbing By-laws of York Township
—Value of the Plumbing Trade Paper

THE York Township Master Plumbers' Association held their monthly meeting, followed by a repast, at Hunt's Limited, Yonge St., Toronto, on Wednesday evening.

Under the able direction of President MacDonald and Secretary Garrick, the meeting got away to a good start, and after regular routine business had been dealt with, a lengthy and thorough discussion under the heading of "Raising the Standard of Work," took place.

Reeve W. S. Jury, known to the trade through his many years' connection with the Gurney Foundry Co. and Crane Limited, showed in his interesting address that a vast amount of time had been given by him toward the general improvement of conditions in the Township, and particularly toward making

the class of work done by the craft as safe and sane as possible for the public good.

He made a spirited appeal for sound plumbing by-laws and advocated rigid and impartial enforcement.

That his views expressed the consensus of opinion of the majority present was shown by the general spirit of the meeting.

Harry W. Rushby and John McCandlish particularly stressed the idea that by-laws and their enforcement must be primarily for the protection of the public, and with this end in view the meeting approved a motion, giving a committee under the chairmanship of Mr. Rushby, power to draw up proposed amendments to the existing by-laws in

York Township. These will be discussed at the next meeting in detail.

This was followed by a splendid educational talk by Kenneth B. Allison, whose illuminating and convincing arguments in which the subject of overhead was dealt with very fully and clearly.

Mr. Allison made reference to the value of the trade paper in collecting and passing on news and technical information of value to the craft, and made particular reference to 'Sanitary Engineer,' as being the only paper of its kind in Canada. The applause which Mr. Allison received upon finishing his address indicated in a very striking way the attitude of members present.



Following items dealing with developments in the plumbing and heating field in Canada in 1903 are reproduced from the trade paper files of the MacLean Publishing Company:

"An excellent sewerage system has been installed in Amherst, N.S., and plumbers are very busy."

.....

"Purdy, Mansell & Co., Toronto, have the contract for hot water heating for the R. C. Presbytery, Penetanguishene, Ont."

.....

"It is rumored a new hotel will be built in Montreal this summer, to be called the Grand Central and to be built on Victoria Square."

.....

"Toronto journeymen plumbers will hold their annual At Home in the Temple Bldg. on Friday evening. President J. A. Drogan is chairman."

.....

"The trouble between Lemmon, Claxton & Lawrenson and the Plumbers and Sheet Metal Workers' Union at Kingston, Ont., has been amicably settled."

.....

"Permits issued for building in Toronto total \$3,834,923 against \$3,568,883 in 1901 when the permit for the \$1,000,000 King Edward Hotel was taken out."

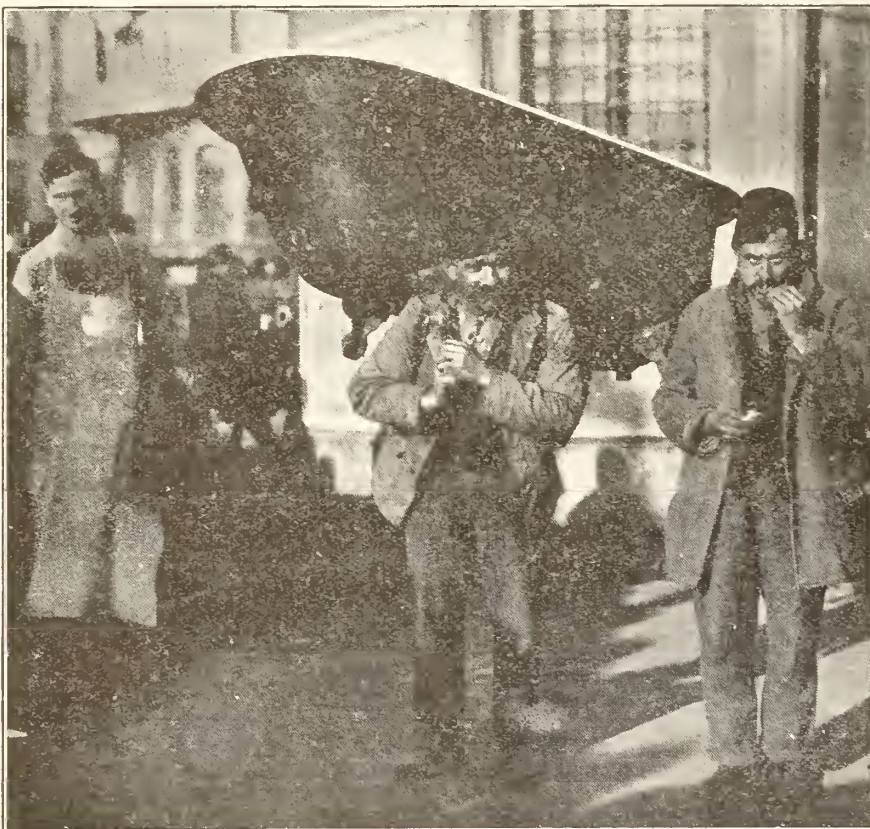
.....

"At the last meeting of the Plumbers' Supply Association, the following resolution was passed: 'Resolved, that each member notify all his travellers, agents, etc., that associational prices are now firmly enforced and must be rigidly adhered to.'"

.....

"It often happens that the droppings from a nickel-plated pipe or from a brass pipe, stain an enamelled bath. It is not easy to clean stains from enamelled ware but in this instance it will be found that a complete polish can be obtained with oxide of tin which does not destroy the enamel."

Where a Bath is a Rare Luxury



Here are shown two burden bearers in the city of Constantinople, the city where much hardship has been experienced as result of the varying fortunes of war. This mode of transportation would hardly be in keeping with the Canadian plumbers' ideas of profitable business and turnover would be pretty small in proportion to costs if it were done this way in this country. Someone is soon to have a new bath tub, which is a rare luxury in Constantinople. The style of the bath is not altogether unlike some of those found in this country.

Merchandising Plumbing Goods Through the Best Use of Window Displays

Standard Plumbing and Heating Co., of Winnipeg, Man., Find Windows Big Help in Selling Small Bathroom Accessories and Bringing Prospects for Heavier Equipment—Selling the Western Farmer on Quality Plumbing and Heating Goods



Window displays are an important factor in the success of the Standard Plumbing & Heating Co., Ltd., of Winnipeg, Man., in the merchandising of plumbing and heating equipment of all classes from small bathroom accessories to large installations. The windows dressed as illustrated created quite a sensation, the Christmas tree idea, as suggested in Sanitary Engineer in December last, being quite a sensation. Sales of lines displayed were in fair volume but the chief advantage was the list of prospects secured for follow-up work.

A SURVEY of the plumbing field in Canada, recently made by one interested in this field, brought home very forcibly the impression that the progressive plumbers who were getting the business and not talking of hard times were ones who, among other things, were making best use of their window displays to merchandise plumbing equipment. The idea of varying the display according to seasons and subjects has been used by a number of plumbers, and the Christmas tree idea as suggested in an issue of Sanitary Engineer last December was very widely used with good effect.

One of the plumbing firms which has great faith in the value of the windows is the Standard Plumbing and Heating Co. Ltd., of Winnipeg. In the accompanying illustration are to be seen two broad windows and two windows at the door entrance, all dressed attractively with plumbing and heating equipment and kindred lines. On the right is seen a built-in type of bath, shower, and a group of small bathroom accessories grouped around the tree. In one of the small windows is seen a pedestal lavatory; coffee urn, mirrors, etc. In the

opposite window a sink, closet seats, etc., are arranged. The broad window on the left contains a grouping of electrical lines showing electric water heater connected up to range boiler, electrical grate, vacuum cleaner, range, etc. This latter business is conducted in conjunction with a firm of electricians.

This firm is located at 290 Graham Ave., Winnipeg, and is under the direction of Joseph Turner. Discussing plumbing and heating matters with Mr. Turner, it was pointed out to Sanitary Engineer that sales of high quality

equipment to Westerners, particularly farmers, were made by the use of the argument that the average Westerner insisted upon having the best grade of tools and implements for harvesting, and that they should see to it that their household was equipped with modern sanitary fixtures. The idea of giving the farm housewife an even break on the deal is also stressed.

In the City of Winnipeg, this firm does considerable contracting business and large installations, such as hotels, restaurants, etc.

Householders First on List for Gas

A COPY of the latest regulations made by the minister of mines under the Natural Gas Conservation Act of 1921, has been received.

The regulations, as issued for the year 1922, first designate the consumers to whom natural gas may be supplied. Householders have preference over all other users. The use of the gas for cooking meals anywhere comes second, the heating of dwelling houses third. A long

list of classes of structures which may also burn gas for heating follows.

New consumers may be supplied where the property to be supplied abuts upon the present mains and can be reached by private service lines from the said mains. Further limitations are placed on the use for heating purposes in the following clause:

"In the foregoing classifications the heating equipment for which gas may
(Continued on page 38)

Sanitary and Heating Equipment of World's Largest Hotel

Mount Royal Hotel Costing
\$7,000,000 Has Interesting Ven-
tilating, Heating and Refriger-
ating System

By J. G. SOUCY



DURING the last 10 years there has been felt a growing need for additional hotel accommodation in Montreal, designed not only to meet the needs of the travelling men and the ever-increasing number of tourists, but to meet the growing demand for better and larger accommodation for general conferences and international conventions. The Mount Royal, with its many beautiful and convenient appointments, was the logical outcome of such an unmistakable demand. The hotel is under the direction of the United Hotels Company of America.

Much could be written about the commercial importance of this enterprise from both a national and an international aspect, but the outstanding purpose of this article is to describe features of the plant equipment, which are of particular interest to our readers.

The hotel has a most convenient location, just one block north of the busy corner of St. Catherine and Peel Sts. The main entrance is on the east side of Peel St. It is in the heart of Montreal's busy shopping district and convenient to all theatres, railroad depots and boat landings.

Just north of it is Mount Royal and to the south flows the majestic St. Lawrence, with its important shipping facilities. To the east are to be seen large industrial centres, here and there studded with churches and office buildings. A little to the south, is the great financial centre, while to the west are fine residential districts.

The Finished Undertaking and General Plan

Some idea of the magnitude of the undertaking may be gained from the fact that the building is 130 feet high, occupies a space 306 ft. long by 227 ft. wide, or an area of 70,000 sq. ft., weighs approximately 150,000 tons; it has cost more than \$7,000,000 to build and required over one year to complete. There have been more than 1,500 men employed directly on the site, which included laborers, mechanics and artists; besides a large staff of expert architects, accountants,

draftsmen, mechanical and electrical engineers, superintendents, supervisors and inspectors.

Away from the site, hundreds of workmen were provided employment in quarries and forests, brick-kilns, cement works and saw-mills, steel works, foundries, and machine shops; various kinds of factories and warehouses, in stores and studios, all for the purpose of providing structural beauty and supplying necessary comfort to the travelling public.

Besides being one of the finest hotel buildings in Canada from an architectural standpoint, it is fireproof throughout. It is the largest hotel in the British Empire. It has 1,100 rooms with bath and toilet conveniences, a large, commodious vestibule and main corridor, as well as two large convention halls. One of these halls, known as the grand ball room, has a seating capacity of 2,000 and the other of 1,200; also, there are several private dining rooms besides the large main dining room.

The ground floor is occupied by stores and there are 10 stories above for the accommodation of guests, the tenth floor being used for banquet and convention halls. In the "Pent House" above the roof, additional separate and complete units for ventilation, refrigeration, etc., are installed. The ground floor further contains the most complete and up-to-date kitchen bake ovens, cold storage, refrigerators and general storage spaces. Below is the basement which contains the most modern laundry equipment, refrigerating and ice-making machinery, also power plant for heating, lighting, ventilation, steam-driven refrigerating apparatus, steam-driven electrical generating sets and switchboards, also water softening and filtering systems.

Architecture—Georgian and Italian Renaissance

The exterior architecture of the building is "Georgian," and the materials used were well selected for the style so adopted. The principal materials used consist of Stanstead granite and Canadian Benedict buff stone also Hocking Valley

and Upper Kittanic light buff brick. The interior design is generally what is known as "Italian Renaissance."

The "Georgian" is a neo-classic style of architecture which flourished in England from 1715 to 1800, during the reign of the Georges. It is a combination of the Italian and the Palladian styles, divested of excessive ornamentation.

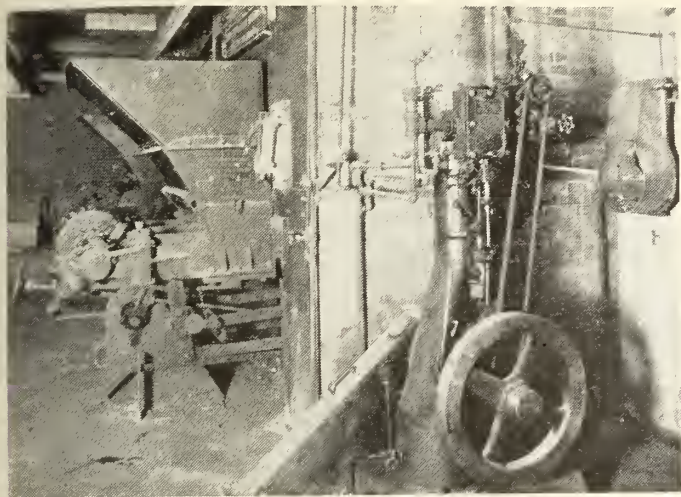
The architects were Ross & MacDonald, 1 Belmont Place, Montreal. The general contractors were Thompson, Starrett Company, Ltd., Drummond Building, Montreal, A. G. Moulton, vice-president and general manager.

Power Plant and Equipment

Some idea of the amount of plant equipment required to meet the needs of this hotel may be gained from the fact that there is about 8,000,000 cubic feet of space to be lighted, heated and ventilated; besides the fact that the hotel may be called upon to entertain, feed and otherwise look after the personal comforts of four to five thousand people at any time, and provide sleeping quarters, fully equipped with bath, toilet, etc., for 1,100 to 2,500 persons.

The basement and sub-basements are probably better ventilated than the average hotel or private home, and the whole arrangement is so complete in every detail that nearly all the wants or needs of its patrons can be supplied within the confines of this building.

Ample space and capacity is provided for store-rooms, kitchen bake ovens, laundries, work-shops, ice-making, refrigerating and cold storage; also an abundant supply of fresh air and cold drinking water to each room.



Steam Engine Driving Stoker.

The drinking water is supplied from an artesian well, 10 inches in diameter and 830 feet deep, (875 feet below street level). The well penetrates and gets its supply from two veins, located respectively at levels of 362 and 830 feet below the basement floor. The supply would seem ample, as a test made showed a capacity flow of 7,200 gallons per hour of pure water at 42°F. The water is elevated from the 91 foot level by means of an air lift or ejector, and the air compressors used will be described later in this article. The water, after passing through suitable filters, is circulated through brine-cooled coils which reduces its temperature to that desired for human consumption. The brass pipes through which it is circulated are all covered with heavy cork insulation. The surplus water goes into the two large storage tanks on the roof used for general supply.

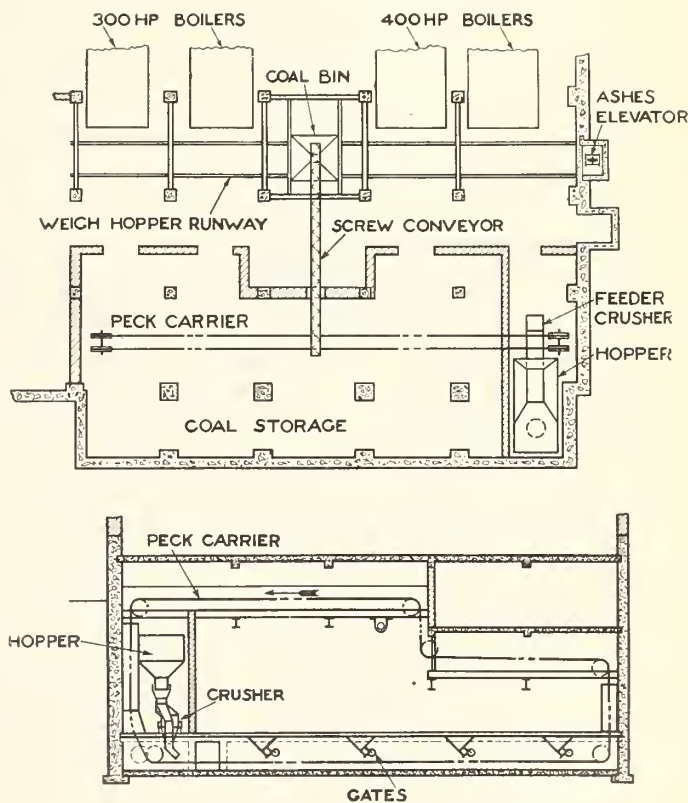
The power plant proper consists of 4 Robb water tube boilers, 2 steam-driven generators, 2 steam-driven feed pumps, 2 steam-driven vacuum pumps, 2 steam-driven supply pumps, 2 air compressors (one steam-driven and one motor driven); 2 steam-driven refrigerating machines, 2 motor generator sets and large motor-driven ventilating fans, motor-driven

VISION — THEN AND NOW

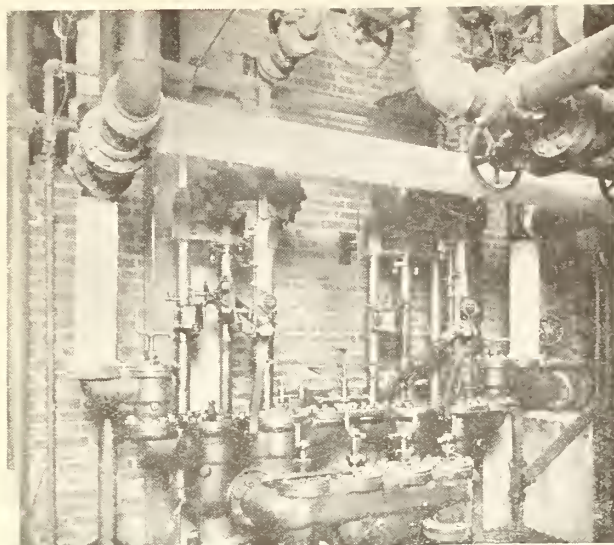
INDOMITABLE faith and wonderful vision are terms that have been frequently used in descriptions of the New Mount Royal Hotel. It may be interesting to recall that faith and vision had much to do with the founding of Ville Marie de Montreal in 1641—1642. The romantic story had its beginning in Old France where one, Jerome de la Dauversiere, desirous of launching some plan whereby the red men of Canada might be won over to Christianity, claimed to have been told by an angel that the first step toward this object would be the setting up of a mission on the Island of Montreal. From this inspiration developed the expedition of Maisonneuve who, with a company of fifty, landed on the site of the future metropolis some two hundred and eighty years ago. The spot had been visited by Cartier one hundred years before, but there had been no subsequent settlement. Not long did the Iroquois permit the newcomers to remain unmolested and the story of Maisonneuve's heroic defence is one of the finest epics of early days in this country. His memory has been perpetuated in graceful form by the statue in Place d'Armes Square. It is from this spot that the eastern metropolis has radiated with characteristic faith, courage, perseverance. Maisonneuve and his little company might easily lose themselves in the splendid structure that has just been completed. It is not the only instance in Canadian history where the visit of a missionary has formed the foundation for modern perspective and enterprise.

elevator hoists and numerous smaller electric driven circulating and sump pumps. The boiler and engine room floors are approximately 30 feet below the street level and the main portion of the power plant is located in the north-east portion of the sub-basement or near the corner of Burnside and Medcalf Streets.

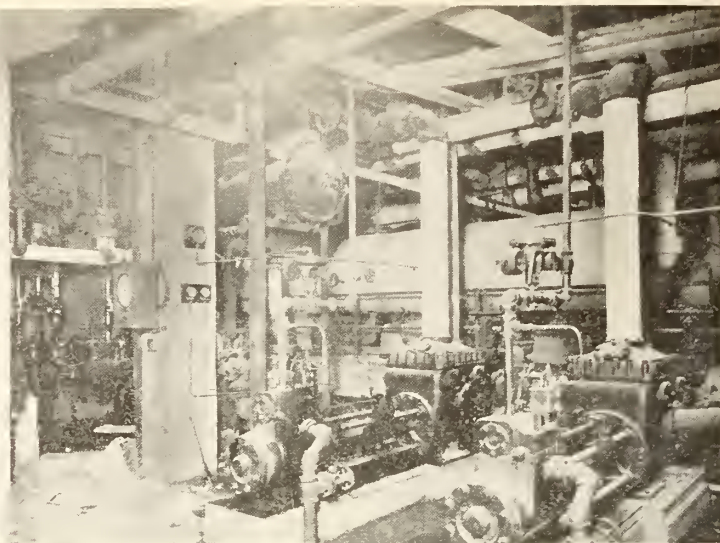
About 10 feet below the boiler room floor is the smoke tun-



Plan and Elevation of Coal Bunker and Conveyor.



Twin Feed Pumps.



Corner of Pump Room.

nel, ash pit tunnel and coal conveyor tunnel. The bottom horizontal section of the coal conveyor is about 100 feet long.

Boiler Room Equipment

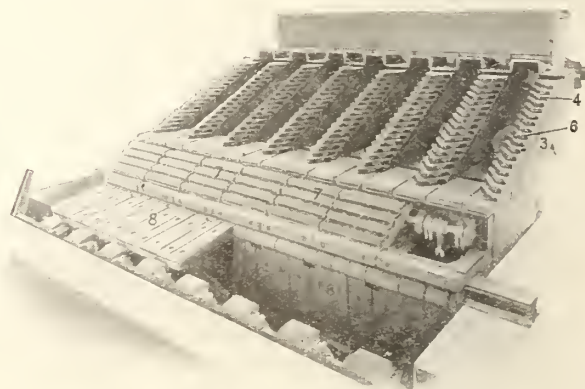
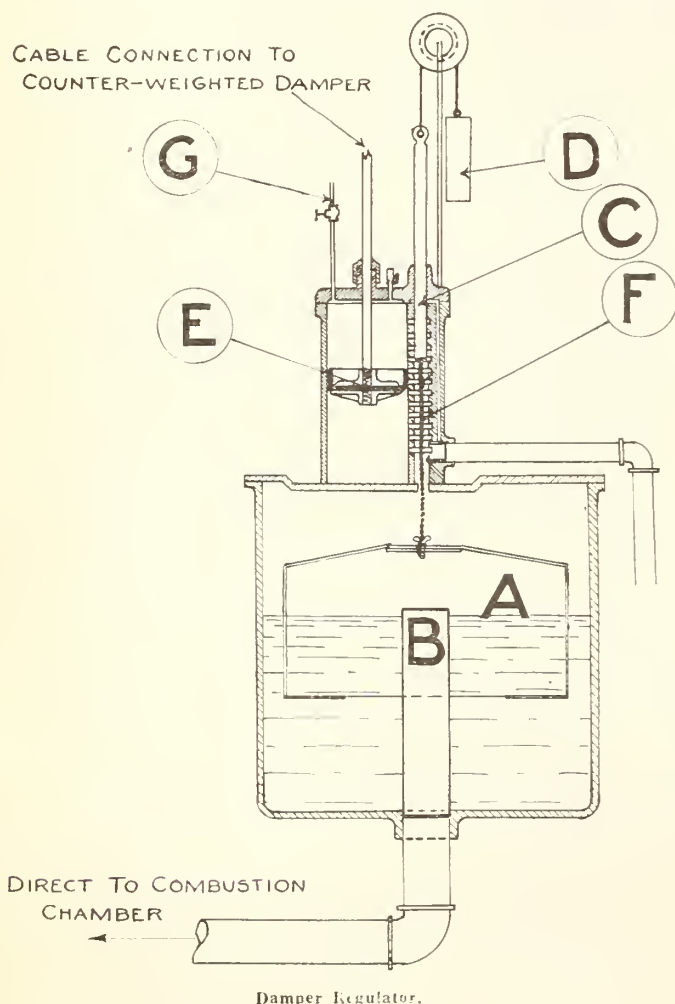
There are installed in the boiler room 4 Robb water tube boilers. Two of the boilers are of 400 h.p. capacity each and two others are of 300 h.p. each, making a total of 1,400 h.p. installed. The boilers are of the double cross-drum type and designed to carry 160 lbs. pressure.

They are not equipped with regular super-heater units, although there has been provided a special superheating

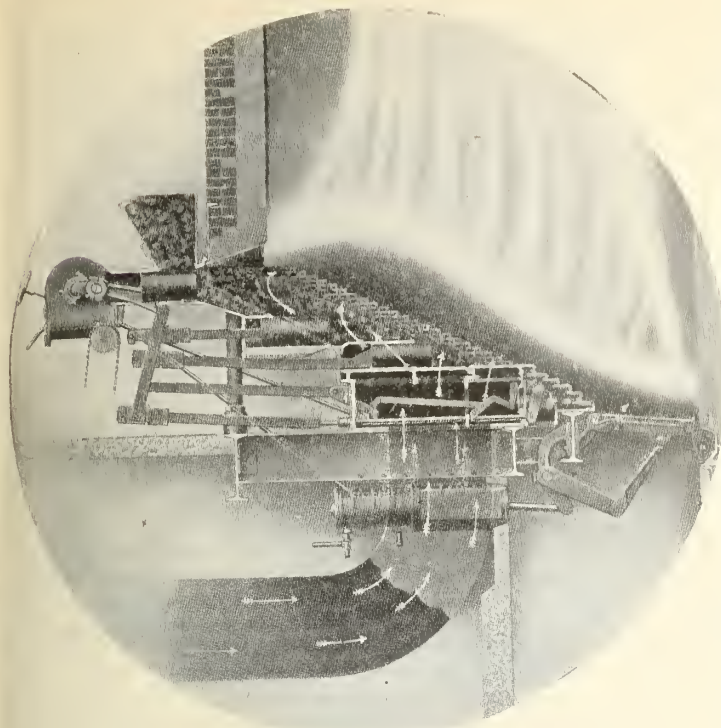
feature, the top rows of tubes being so designed that the equalizing steam passing through them is exposed to the hot combustion gasses in the first stage or pass. The boiler ratings are based on the usual formula of 10 sq. ft. of heating surface per h.p. The boilers are supported upon steel columns. The boilers are equipped with Turner baffles, which together with the brick settings, and furnace linings, were installed by Mander & Lucas. The furnaces are lined with Glenboig fire brick and the back passes with Lumber City fire brick. The boilers are all equipped with stokers, furnished by the Taylor Stoker Company of Canada, Ltd. Two of the stokers have 3 retorts each and the two others 4 retorts each, there being one retort per 100 h.p. demand. Each retort is provided with 17 tuyeres. The stokers are driven by 4 12½ h.p. vertical steam engines. The stokers are intended to burn either anthracite screenings or slack (bituminous) coal or a mixture of both. The overload capacity of these stokers is 200% of rating.

The compressor plant is described as comprising an Ingersoll-Rand class ER-1 single stage straight line short belt motor driven air compressor equipped with the latest type of I-R plate valves, permitting higher overall efficiency than any similar equipment yet produced. This unit is used for regular operation, and for standby purposes, an Ingersoll-Rand class FR-1 I-R single stage straight line steam driven compressor is installed. This machine is also equipped with the latest type of plate valves and I-R balanced piston steam valve. An unique feature of the compressor or plant, which is strictly up-to-date in all respects, is that special precautions were made to prevent the noise of operation from travelling throughout the building.

The advantages of this plant are extreme simplicity and



Inside view of furnace showing multiple retorts of stoker.



Sectional view of stoker, showing series of coal feeding plungers.

reliability, large capacity, limited only by the source of supply, low maintenance cost and great flexibility. A further advantage is that the water is very thoroughly aerated by the amalgamation of the air and water passing through the discharge pipe. The extensive aeration to which the water is subjected and the natural filtration due to the subterranean sources of supply produce a pure undefiled water which is particularly adapted to hotels, breweries, bottling works and municipalities.

The advantages of the particular type of pump installed are: Realization in the most efficient manner of all of the advantages to be gained by use of an air lift pump. In practice the air in the Type "VA" Pump is divided into fine streams which is an essential requirement in air lift pump efficiency.

A proper amount of back pressure is held in the pump and prevents sudden rush of air due to the coalescence of bubbles and lightening of the discharge column. There are no moving parts whatever. The foot piece offers a smooth, unobstructed

entrance and discharge chamber. There are no nozzles or obstructions.

It is impossible to prevent scale and dirt passing down the air lines into the pumps, consequently provision must be made to eliminate any such trouble with certainty. In the class "VA" pump any foreign material which may come down the air pipe falls through the unobstructed openings between the outside casing and the inner tube.

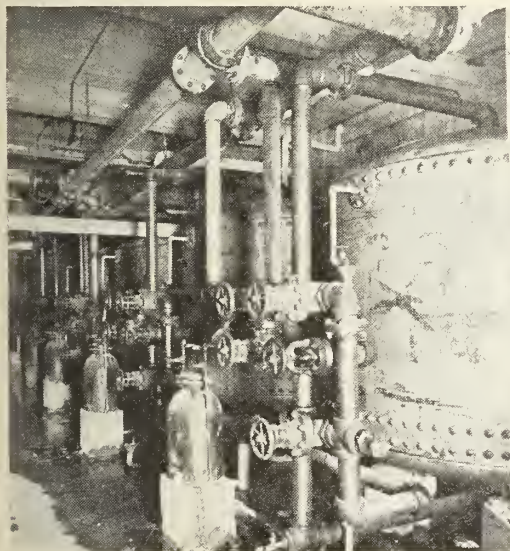
This regulator made by the Craig Regulator Company of Canada is a very simple device, and its control of the damper is actuated by fluctuation in the draft over the fire, with the result that if the draft becomes excessive beyond the point for which the regulator is set, the damper is closed sufficiently to bring it back to normal, and vice versa.

A glance at the line drawing will make the following description very clear. The 2 in. pipe B opens directly into the combustion chamber, at one end, and as shown under the gasometer float A in the regulator itself, the gasometer float is connected through a chain F to a plunger C which moves vertically in a multi-port valve opening and closing the ports with the movement of A. The piston E is in a cylinder off which the multi-ports of the valve just mentioned open. This cylinder is fed by water from a pipe G from city water supply, which is controlled by a needle valve. The counterweight D balances the plunger C, chain F, and gasometer float A, and any extra weight in this counterweight takes care of the position of the damper to give the required draft.

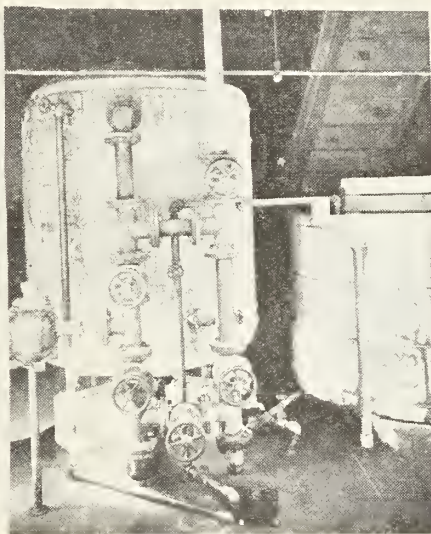
The action, briefly, is as follows: Any extra suction at D exerts a downward pull on A, and consequent downward movement of C, closing off the ports in the multi-port valve. Immediately the pressure in the piston chamber above E is built up through the inflow of water at G, causing a downward movement of the piston and a closing of the damper which will reduce the suction. It should be noted that the piston E by the closing action of the damper, will be comparatively slow, as the inflow of water through G is cut down to a minimum by the needle valve. On the other hand, when the reverse action takes place, the plunger C rises and opens as many ports in the valve as the decreased draft condition dictates, allowing a quick rise of the piston E, and the consequent quick opening of the damper.

Forced (Balanced) Draft System

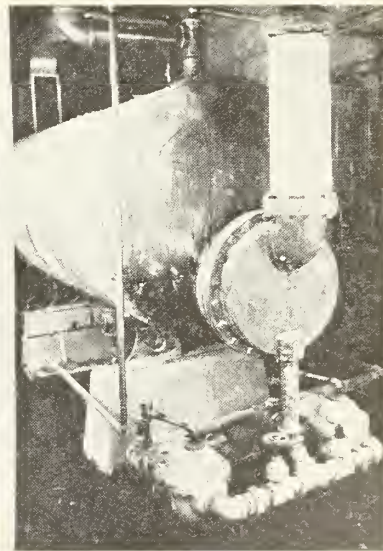
The forced draft equipment consists of 2 (Keith) Sheldon's, Ltd., fans supplied by Ross G. Greig, of Montreal. The fans are driven by two 25 h.p. vertical steam engines, by the Troy Engine Foundry & Machinery Company, of Troy, Pa. The forced draft fans and engines are set in an offset directly in front of the boilers. These fans are used in combination



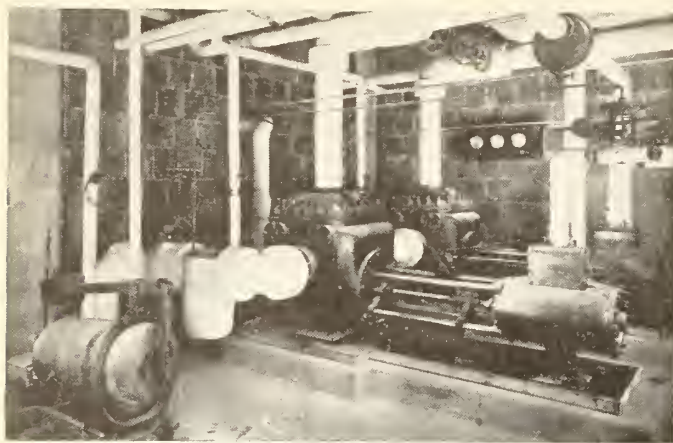
Pressure Filters.



Water Softener.



H. W. Supply Tank.



Vacuum Pumps and Return Traps.

with a Craig damper regulator attached to each boiler which results in a balanced draft being maintained automatically.

An unusual feature encountered here is the "down-draft" direction of the gases or products of combustion from the last pass to a smoke tunnel below and thence up to a round (brick-lined) steel stack or chimney.

The water columns are all equipped with high and low water alarms. The safety valves consist of two 4" "Pop" or spring leaded type of valve supplied by T. McAvity & Sons.

Feed water regulators—Each boiler is equipped with

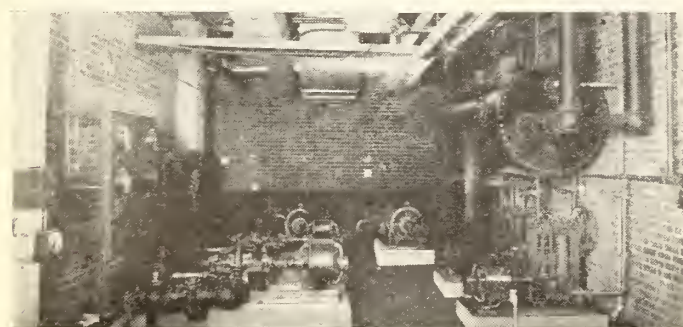


Main Sump-Pumps and Fan Room.

Copes feed water regulators, made by the Northern Equipment Company, and supplied by Peacock Bros., Montreal. They automatically regulate the flow of feed water to meet requirements.

Main stop and non-return valves—There are four 6 "D" main stop non-return Lunkenheimer steam valves, supplied by the Garth Company, Montreal; also Lunkenheimer stop and check valves in the feed water lines.

Blow-down valves—There are two sets of blow-down valves to each boiler, one is of the type of everlasting B. O. valve; and the other consists of Lunkenheimer gate valves. The



Brine and Fresh Water Pumps.

blow-down discharges into a large B. O. or expansion tank, made by Darling Bros., Montreal. The drains from the above tank are led into a sump-pit or tank below the boiler room floor, and a set of ejector pumps remove the waste water to the main sump-pit. The steam gauges, made by the Foxboro Company, Foxboro, Mass., and were supplied by Peacock Bros., of Montreal.

Boiler meters.—Each boiler is equipped with a Bailey boiler meter type 26, class 56, which indicates and records the air flow, steam flow and the flue gas temperature, also the draft in the fire box; in addition to the above there is an integrating feature which totalizes the flow of steam for any desired period.

Steam flow meters.—There are two Bailey steam flow meters, type C6, class 1, which indicate and record the flow of steam other than that used for power and heating purposes. They are also equipped with an integrating feature for totalizing the amount used for any desired period. One of them is used to meter the steam used in the kitchen, and the other to meter the steam used in the laundry. It is quite important that the steam used for power in summer and that used for heating in winter should be determined by similar instruments. In this way the amount of condensate going to the sewer could be determined and in such a large plant the corrective value of such information would prove valuable and result in a direct economy.

Steam and Hot Water Distribution

Steam branches from the boilers are all connected into a 10 in. main steam header or "log" from which an 8 in. loop provided steam for all the auxiliary steam pumps and engines located in the engine and fan room.

The steam is distributed first at 160 lbs. as above described, another line known as the high intermediate carries 80 lbs., another known as the low intermediate carries 40 lbs. and the low pressure from 2 to 3 lbs. is used for heating purposes entirely. All the steam piping from 5" up to 10" as well as all brass and iron pipe is of the Crane make, and all high pressure steam valves are of the Lunkenheimer make; Crane valves are used for low pressure steam heating.

Philip Carey—85 per cent. magnesia pipe covering was used by Wm. Rutherford & Sons for all tanks and steam pipes. The feed water control and check valves are Lunkenheimer make supplied by Garth & Co.

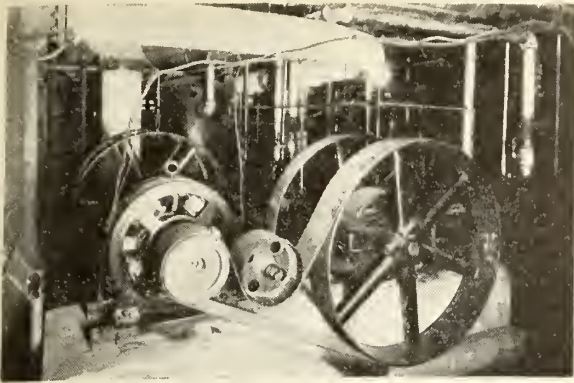
A Bailey feed water meter, type C2, class A, is used to indicate and record the flow of feed water to the boilers; the temperature of the feed water is also indicated and recorded; also this meter is equipped with a special integrating feature which totalizes the amount of feed water used for any desired period.

Feed water pumps.—The two 10½x8x24" steam driven, vertical direct acting, Weir feed water pumps, through Peacock Bros., are the latest design of the G. & J. Weir Pump Company. Their capacity is, in excess of that required, (200 lbs. head at a speed of 12 double strokes per minute), 5,930 imp. gallons each per hour. These pumps are equipped with Copes feed water pump regulators. There are two size 5 Blackburn & Smith Corp. feed water filters.

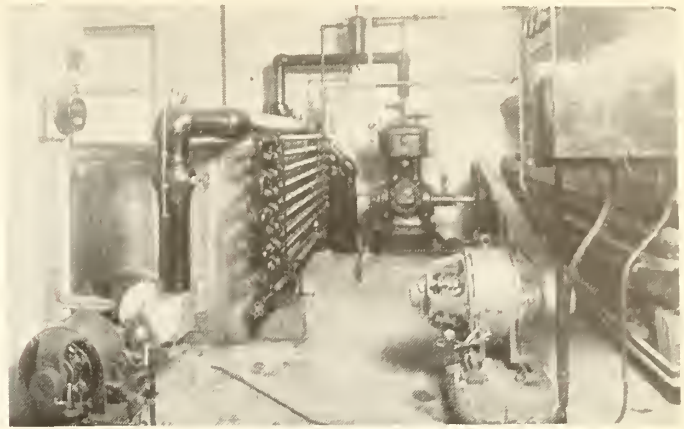
The feed water heater, illustrated here, has a capacity of 3,950 gallons per hour and is of the closed type. It is heated generally by exhaust steam and is equipped with a Powers automatic temperature regulator.

In the winter time there will be a large amount of condensate from the heating system returned to the hot well or feed water supply tank; and the make-up water is taken from the two large storage tanks upon the roof. Each storage tank has a capacity of 10,000 gallons of filtered water. Further provision has been made for supplying the boilers direct from the two city water service connections. There are in all five sources of feed water supply.

- (1) High pressure city water direct to boilers at 135 lb
- (2) Filtered water from the service supply pumps at 150 lbs.
- (3) Low pressure city water (60 lbs.) by feed pumps at 175 lbs.



Air Compressor Outfits.



Refrigerating Machine.

(4) Hot water returns from the heating system by feed pumps at 175 lbs.

(5) Water from the artesian well, should an emergency require at 15 to 175 lbs.

City water connections—Provision has been made for two water connections, one from the high pressure service (Peel St.) at 135 lbs., and another from the low pressure (Burnside) at 60 lb. One very objectionable feature, an engineer will note here, is the use by the city of Montreal of left-handed stop valves. Such a practice should be discontinued at the earliest possible moment.

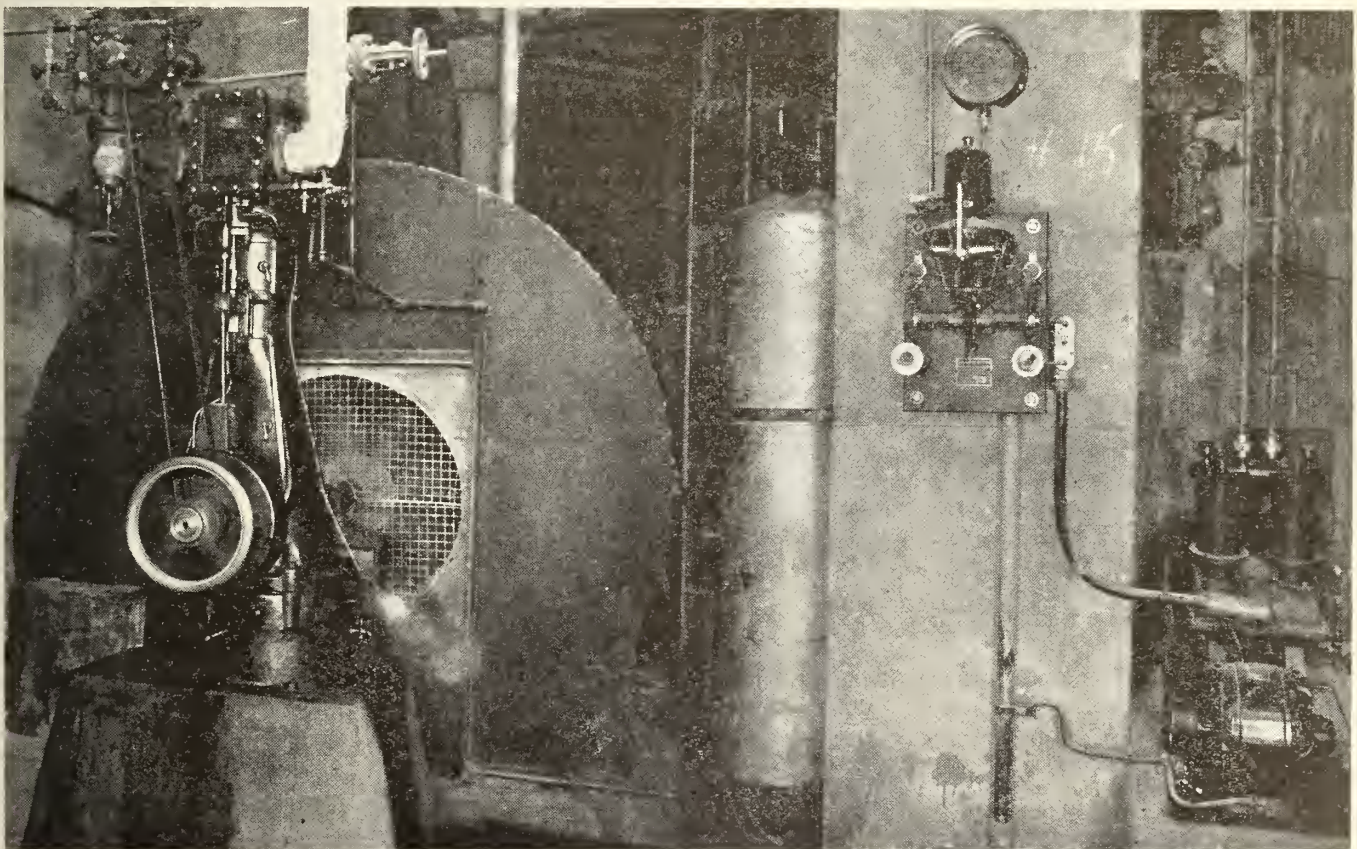
Pressure water filters—The 6-78" Refinite pressure filters shown here have a capacity each of 6,000 Imperial gals. on a basis of three gallons per square foot per minute. The hot water supply for wash basins, baths and shower baths, also kitchen and laundry, is provided for by five large cylindrical tanks, heated by exhaust steam. One of them is used exclusively for the laundry. They have a combined capacity of 19,000 gallons per hour.

Water softener and brine tank—The 60 inch water softener and brine tank by Refinite Co. of Canada has a guaranteed capacity of 46,000 Imperial gals. in 10 hours. The softened water is provided for use in the laundry.

General supply and fire pumps—The general water supply for the building, also emergency for fire purposes, is provided for by two steam driven 17x12x21 direct acting vertical Weir pumps. They were supplied by Peacock Bros., and have a capacity each of 24,000 Imperial gals. per hour at 170 lbs., (speed 26 double strokes per minute). Although the building is thoroughly fireproof, there will be at times considerable combustible material stored in it, so that arrangements were made that either one or both of these pumps could be used for fire purposes.

Vacuum pumps—The condensate from the heating system is handled by means of four Darling Bros. steam-driven vacuum pumps.

Condensate from the laundry during the summer is handled by Crane lifting traps.



Engine and Fan For Forced Draft.

Johnson Regulator and Air Compressor.

An air compressor in a modern power plant is now considered indispensable. The Mount Royal is provided with two 12x10, made by the Canadian Ingersoll-Rand Company, Sherbrooke, Que. One is a steam driven unit and the other is motor driven by a Westinghouse electric motor.

Direct and Indirect Heating

Direct Heating—Some idea of the amount of radiation required may be gained from the fact that there is approximately 8,000,000 cubic feet of space to be heated, with a very large glass and outside wall exposure. There are installed 2,500 units of varying sizes of steam radiators by the Dominion Radiator Co. in the various bed, bath, reception, dining and special rooms, and the heating of them is controlled as required by modulation valves and thermostatic traps. It is estimated that from 60,000 to 63,000 square feet of radiation



WALTER T. ARMSTRONG,

was required to heat the building, including both the direct and indirect systems.

Indirect Heating—In connection with each fresh air supply fan, is a heating unit consisting of a bank of steam-heated pipe coils and in combination with it is an air washing or spraying system which controls and regulates the humidity or proper amount of moisture which the air should contain for health and comfort. The indirect radiation installed is approximately 11,000 square feet.

The heating equipment, the Kieley & Mueller steam pressure reducing valves, as well as Lunkenheimer valves constitute a Garth Co. installation. Low pressure steam valves were by Crane Company. All steam and water pressure gauges used, both indicating and recording, were of Foxboro make through Peacock Bros., Montreal. The condensate or hot water returns are handled in winter time by four Darling vacuum pumps. During the summer time the hot water returns are handled by Crane tilting and lifting traps.

Ventilation and Air Exhaust

There are a number of screened openings from which a fresh air supply is taken in at different parts of the building; however, there has been provided a cold air shaft direct from the roof which supplies fresh air to the main fan room situated in the sub-basement.

The fresh air supply to the main indirect heating is washed and carries the proper amount of moisture introduced before it is delivered to the lobby, main dining and special rooms. There are installed 10 fresh air supply fans and 14 air exhaust fans, all of which are of the Keith pattern, by Sheldons, Ltd., of Galt, Ont. They are driven by Westinghouse motors,

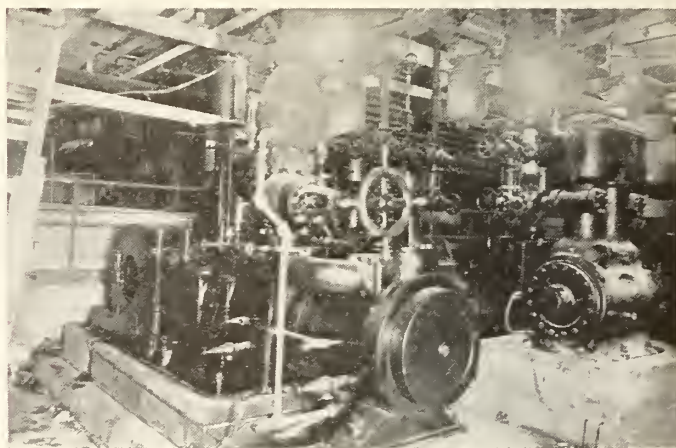
which vary in capacity from 3 to 30 h.p. Auxiliary ventilation in the "Pent House" on roof is provided to take care of the grand ball or banquet room and convention halls on the 9th floor.

The hot air supplied to the various rooms passes through a "diagonal grill" or lattice-like face plate, by Tuttle & Bailey, Bridgeburg, Ont. The galvanized air-boxes or duct through which the hot air is supplied to the rooms and the used air is changed frequently or exhausted, are by Baxter & Webber, Montreal. Two hundred tons of Keystone galvanized iron was used to complete the amount of air duct required, and an average of 30 men have been employed constantly for several months making and erecting the work right on the job.

Ice-Making and Refrigeration

The main refrigerating and ice-making machines consist of what is said to be the first steam uniflow engines with poppet valves for both intake and exhaust, driving ammonia gas compressors. The complete outfit was manufactured and installed by the Frick Ice and Refrigerating Machine Company, Montreal. The engines are fly-wheel-governed and designed to operate at high speeds, ranging from 150 r.p.m. normal to 325 r.p.m. maximum. The vertical enclosed type of ammonia compressors are designed to compress the gas to 125 lbs. normal and 175 lbs. maximum. They have a capacity, each of 40 tons normal and 60 tons maximum. They were installed with a guaranteed capacity of 75 tons of ice per day.

The ammonia gas, after being compressed, is passed through a bank of condenser coils, where the temperature of the compressed gas is further reduced at least to 52 F., after which some of it passes either to a low temperature refrigerator or the ice making room, where expansion takes place and the gas absorbs the heat from the substances to be frozen. Another



Frick Uniflow Engine and Ammonia Compressors.

portion of the compressed gas is expanded in coils about which the brine is circulated. The brine, after imparting its heat to the ammonia gas while it is expanding, becomes reduced in temperature and is circulated to the various tanks and refrigerators where only a moderately low temperature is desired. The drinking water supply for the guests is cooled by passing through a brine-cooled tank. The ammonia gas after expansion and absorption is drawn back into the compressors by the suction effect of the receding compressor pistons, and there compressed as previously described, thus completing the cycle.

In the ice-making room, which is about 30 feet square, there are about 500 large cans (8" x 16" x 32"), immersed in a tank full of a brine solution. The brine is circulated around and in between the immersed cans by means of two special brine agitators, driven by two 54 h.p. Reliance electric motors. The cans are filled with 100 lbs. of filtered water and when frozen are removed from the tank to the unloading and ice storage room; the cans are later returned to the tank filled with water and immersed again in the brine circulation.

Giving Preference in Heating Systems

The High Spots Told in Story Form—First Applications, and How History Appears to be Repeating Itself—Why, How and When to Give Preference to the Various Systems of Heating—Steam Vapor, or Hot Water Heating

By Edwin Newsome, Consulting Engineer

WHEN steam is looked upon as dangerous, when vapor or vacuum steam heating is viewed with some amount of suspicion, when one pipe job is preferred to regular two pipe jobs, when hot water heating is boosted sky high no matter what the conditions are, well—there's something wrong. The heating engineer who, under every condition prefers any of the systems referred to, has not taken the subject of heating seriously.

The "smart alec" who invented a one pipe steam job should have lived to hear all the hammering and all the "cuss words" caused by such impractical and unnatural systems, and he would have made a capital booster for two pipe jobs, or else held both hands up in favor of hot water heating. Steam should be looked upon as a blessing in the heating world and it is to those who know what steam is and the flexibility of a steam heating system. This does not mean that no matter what kind of a building is to be heated, that steam should be given preference. But, before entering with the fundamentals governing systems of heating one thing at least can be said in favor of steam, that while it can reasonably be adapted to the heating of any building in some form or another under any condition, the same cannot be said of hot water heating every time. It has its limitations.

Big Strides Made

The heating engineer, therefore, if he ever truly wishes to be worthy of the name, must accept the responsibilities attached to such a title, and must study thoroughly the fundamental principles connected and related to the science of heating. And, if he does so he will be amazed at the great strides being made in the application of heat, and the various methods now being adopted.

Some of the most radical steps made recently in the heating of buildings, appear to be taking us back to a period something like 4,000 years ago, that of the method of indirect heating adopted in the Oriental countries and by the cave men of prehistoric times.

The prehistoric cave man built fire places outside his cave, made tunnels under the floor of his abode to act as a kind of chimney, and the heat from the flame and the smoke were utilized to heat the interior of his home.

In Japan, houses were built, and, it is said, are still built with hollow tile floors.

Some of these hollow tiles are similarly used.

How System is Laid Out

In the British Isles the very same method or rather the principle is adopted by some of the largest heating engineering firms there. The general system is laid out in the following manner:

First, a steam boiler is installed in a basement or sub-basement, vento radiators or box coils are hung up in the ceilings of the basement, and iron casings placed around the coils or vento radiators, cold air pipes are fitted to same with a small individual fan to each box, warm air ducts are placed in the boxes too, and installed under floors and through walls. The fans

also re-circulate the air through the warm air ducts, and no outlets in the floors or walls are installed, so that none of the actual heated air is allowed to enter the buildings, none of this warm air is inhaled by the occupants of the rooms.

As the heat passes through the ducts, it warms the rooms. Of course, the walls and floors are literally full of warm air ducts, so that one would almost be led to believe that we are only a few steps ahead in the final results procured by our prehistoric ancestors, if results are to be considered.

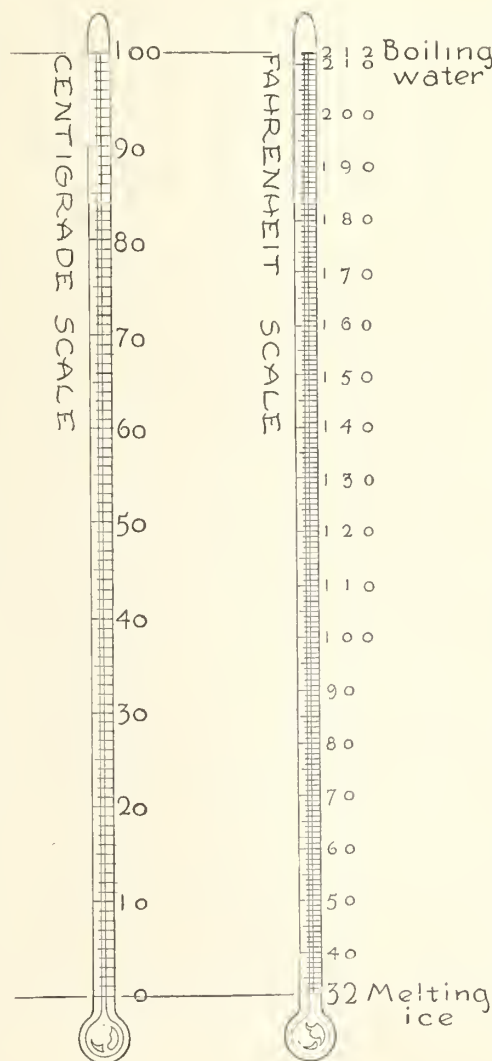
What is Heat?

It is regrettable to note how very few men who are engaged in the installing of heating systems, know even the first principles involved in the heating of a building or buildings. Too many by far, are there who (while to be admired for the apparent courage) know so little about heating. They are those who, having worked a few years with pipe fitting tools, installed a few jobs that have been laid out by manufacturers of boilers and radiators, think they know all about heating. It would be safe to say that 20 per cent. more coal is wasted than would be if some laws were put into force that would require each man engaged in the heating engineering profession to pass some examination and all his work be inspected by competent engineers. However, this is taking us away from the question, "What is Heat?"

Very often the simplest question regarding every-day phenomena, will puzzle the wisest of us. We are so familiar with the effect, with the things we look upon as quite commonplace, and the effects which those things have upon our daily life that we seldom, if ever, trouble ourselves as to the cause of these various conditions so very necessary to our standard of living and as a matter of fact to every progressive stride made.

If we could only see what really happens when we strike a match, and watch it burn, we would witness such an elemental battle as has never taken place on any battle field recorded in history.

Thousands of trillions of minute molecules clashing with enormous velocity against each other, countless brigades of contestants forming and reforming into battle line, hurling each other together against as many trillions of apparent



enemies. Such a battle as would make the battle of the Marne appear more like a garden party conducted by a Sunday school executive.

A Form of Motion

And the application of heat, in various forms is wonderful, which to know of would fill one with wonderment. If we could only see what takes place when heat is applied to iron or steel, brass, copper or any other incompressible matter we would be filled with awe. And, more than all, we would then only begin to realize what heat is. "Heat is a form of motion." "Heat is energy." "Life is heat."

Matter is made up of tiny particles called molecules, so small, says Sir William Thomson, that if a small drop of water was magnified to the size of the earth, the molecules of water would each be less than the size of an ordinary baseball.

On the other hand, if we cool, or allow to cool, either water or gases, steam or even anything compressible, as well as iron, brass, copper, steel or any other incompressible solids, these tiny, tiny molecules move slower. Proving still conclusively that according to temperature all elements, material of a metal, fluid or gaseous nature, is warmer when the natural or specific molecules are in active motion.

How Molecules Move

There is, however, a difference in the molecules, and the molecular motion in the three conditions in which matter exists:—In solids, the molecules move back and forth, just like tiny pendulums; in liquids, the molecules wander all around without any apparent aim and in no regular set path; in gases the motion is supposed to be in perfectly straight lines.

We are all familiar with the effects of heat upon the body, and are not slow to recognize the presence or absence of heat by the sense of feeling. This heat or temperature, we would define as sensible unsafe guide to the real condition of substance with respect to their temperature.

A person, returning from a walk in zero weather, entering a room the temperature therein being, say, 50° Faht., has the impression that the room is very nice and warm, whereas if another person entering the same room at the same moment from another room in which the temperature registered 75° Faht. would feel the room very cold, hence the need for some reliable temperature recording instrument which will tell the occupants of a room or building, exactly what the actual temperature of a room is.

The first practical thermometer was invented by Galileo prior to the year 1597. It consisted of a glass bulb, filled with air and dipping it into a vessel containing colored water.

When the air in the bulb became hot-

ter, its molecules moved faster and exerted more pressure upon anything with which they came in contact. They subsequently pushed the liquid down the tube. When the air was cooled, the very reverse happened and the atmospheric pressure forced the liquid up the tube. This tube is marked with an arbitrary scale.

This instrument crude as it was did one thing, or at least convinced scientists that some standard and reliable fixed scale must be formed if such instrument were ever to rise to the dignity of an accurate "measurer" of temperature.

It was then found that water at sea level will boil at 212° Faht. and this was adopted as one of the important markings. Then it was found that water would become frozen at 32° Faht. sea level. But more interesting than all is how even these figures were arrived at by Fahrenheit, cumbersome as they no doubt are. He did, however, plan to make a thermometer that would without question tell the truth, the absolute truth about the temperature of a body, no matter in what form that body may be.

Fahrenheit did not want to start his scale at freezing point, because he knew quite well that there was a lower degree, or many degrees below mere freezing point, because he could create a lower temperature than 32° by mixing pounded ice with common salt. This he could do any time of the year, at any altitude and in any place. He then, in his experimental work, took such a mixture, suddenly plunged a tube and bulb containing mercury, into a vessel containing the ice and salt and scratched a zero mark on the glass tube at the top of the mercury column and this was the beginning of the Fahrenheit thermometer. The temperature thus recorded, he defined as being the absolute zero point.

He then calculated the mercury volume at that temperature and found it to be 11,124 parts. Next he promptly expanded the mercury in the same tube, by placing it in a mixture of ice and water and found that it occupied 11,156 parts by volume or 32 parts of an increase over the zero volume, and accordingly scratched the number 32 at this new height of the mercury column, and called it freezing point of water. Next he placed his newly designed "thermometer" in boiling water. The mercury expanded to 11,376 parts, or 212 parts higher than zero. This he called the boiling point of water. He then divided the scale between 32 and 212 into 180 equal divisions which he called degrees, and his scale was complete.

Our readers will see by the above experiments, that there appears to be a motive power in mercury and air, as well as in all substances, when such materials are subjected to varying temperatures. This motive power requires some form of energy such as coal, fuel

oil, wood or any substance containing heat and subjected to the ordinary treatment we call burning. Thus bringing us to our main subject, that of the science of heating systems.

(To Be Continued)



DeBroke (roused by his wife): "What's that you say? A burglar?"

Mrs. DeBroke: "Yes. Fancy a burglar calling on us!"

DeBroke: "Suppose we let him climb in. Then I'll give a yell and it may make him drop something he has got somewhere else."

* * * *

"I can't do a thing with Jones," said the manager. "I've had him in three departments, and he dozes all day long."

"That's easy," replied the really efficient efficiency engineer.

"Put him at the pyjama counter, and fasten this card on him:

"Our night-clothes are of such superior quality that even the man who sells them cannot keep awake."

* * * *

A tourist in Scotland, stopping at a cottage for a drink, observed the old inhabitant attempting to chop a large log of wood with an ancient-looking axe.

"That's an old axe you've got there, isn't it, dad?" he asked.

"Aye, it is," came the reply; "it's nigh on a hundred years old."

"Indeed," said the surprised tourist, "I shouldn't have thought it was so old as that."

"A'well, mebbe it's not exactly that," answered the old man. "It's had two new heads and three new handles since then!"

* * * *

Old Ebenezer was whitewashing his barn with a brush that had very few bristles left in it. The squire happened to pass and said:

"Why don't you get a brush with more bristles in it, Ebenezer?"

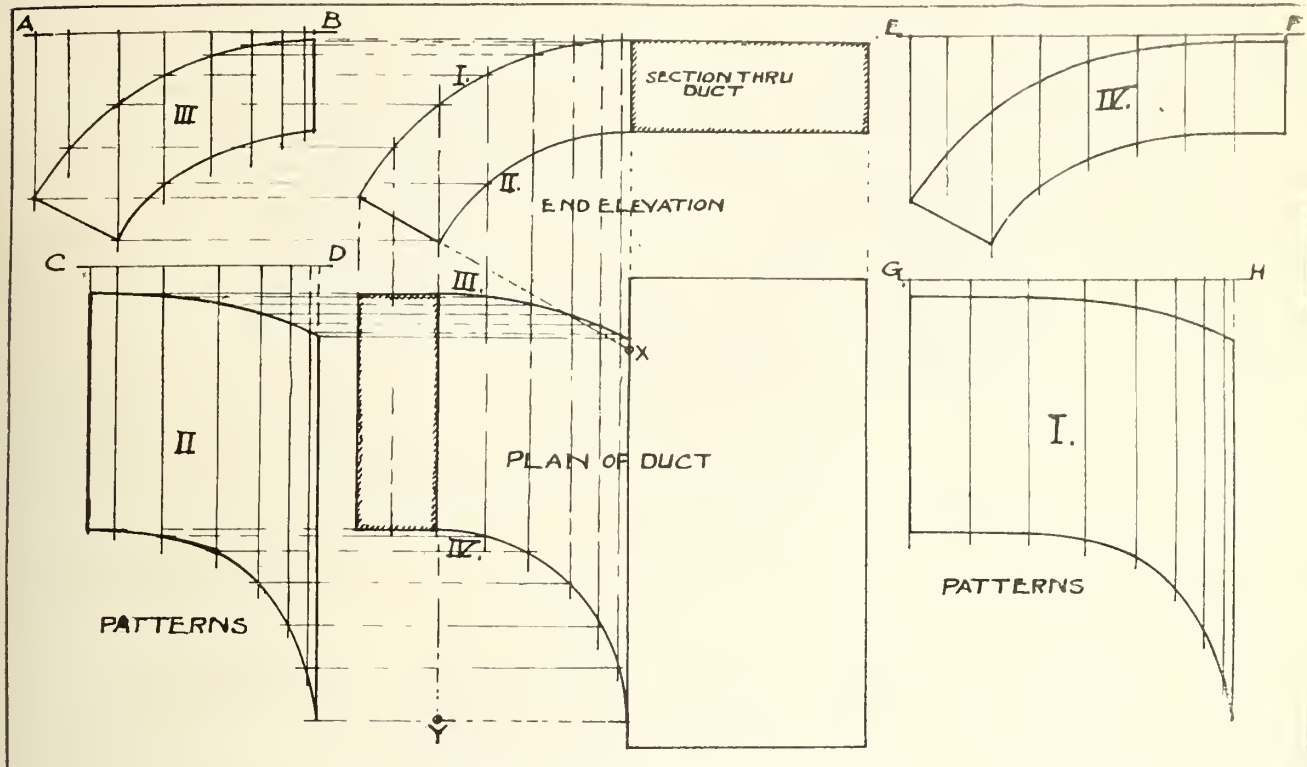
"What for, squire?" asked the old man.

"What for?" shouted the squire. "Why, man, if you had a proper brush you could do twice as much work."

"Mebbe so, squire; mebbe so," responded the old chap placidly. "Only I ain't got twice as much work to do."

Compound Angle Elbow Patterns

Prepared for Sanitary Engineer by O. W. Kothe, Principal, St. Louis Technical Institute, St. Louis, Missouri



Designs for Compound Angle Elbows.

IN HEATING and ventilating square duct work, it is often necessary to make fittings that branch out from a main duct, taking on a quarter turn and also drop in the space of a few feet. Fittings of this kind are necessary in public buildings as well as ventilation systems on board ships. For such a problem we first draw a section through main duct and then we describe the amount of angle this branch is to have, giving the radius of throat preferably two diameters or widths. Next describe the plan of duct and the branch from the center Y. Observe the end elevation branch is described from X and that we divide the throat of plan in equal spaces. From each of these points we erect lines to cross the heel of plan and also the throat and heel lines of end elevation.

Observe this treatment adjusts the lines on all sides of the fitting if though lines were square around all four sides made equal to the width as they will work out on that side, which widths are shown on the lines I, II, III and IV. The shaded rectangle of plan begets its line from the elevation which is bisected in order to treat that space which could not be treated from the throat of plan.

Now to set out the patterns, we pick

the girth from the end elevation and develop it from the plan, while the girth from the plan is picked and developed from the end elevation. So we pick the girth, taking each space separately from the heel III and set it on line A-B in pattern III. Drop stretchout lines and from each point in branch of end elevation square over lines, thus developing the miters as shown. In the same way pick the girth from the throat of plan IV and set on a line as E-F and develop in the same way. Repeat this by picking the girth from elevation as heel I and set on line G-H and develop from plan. Next pick the throat line from elevation II and set on line C-D and develop from plan as shown.

Observe the throat and heel lines of both the elevation and plan are used as staves for forming these patterns, since the patterns must take on the same bend shown by these heel and throat lines in our working drawings.

Fairbanks-Morse Co. Sales Convention

Montreal.—A five-day sales convention of the Canadian Fairbanks-Morse Co. Ltd., was held in Montreal, those

present including a number of heads of divisions of the United States Company, including the following from Chicago: J. P. Harper, oil engines; E. D. West, farm engines; F. V. Roy, scales; L. J. Osborn, electrical. Henry J. Fuller, New York, chairman of the board of directors, was also in attendance.

Speaking at the opening session of the convention on Tuesday, Mr. Fuller evinced much optimism regarding trade prospects for the year, both as regards the company and as to the business world as a whole. A similar trend of thought ran through all the addresses which followed. Each of the visiting division heads addressed the convention along the particular line in which he is a specialist.

The sessions were held in the new Mount Royal Hotel, a dinner being held there on Thursday followed by a theatre the whole staff of the head office were the guests of the firm.

The following managers of the Canadian branches of the organization were in Montreal for the convention: W. A. Akhurst, Vancouver; K. N. Forbes, Winnipeg; F. W. Evans, Toronto; W. J. Hill, St. John; J. N. Charles, Windsor; T. H. McWilliam, Ottawa; J. J. Marnell, Quebec; M. V. Cordell, Montreal.

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Inter-Provincial Boiler Code

THE Inter-Provincial boiler code is now a fact, and is in use in the larger number of the provinces of the Dominion. The regulations have been set out in book form, and are now available to the public, at a price of \$1 per copy.

It is interesting to note that the first conference held at which representatives of the different provincial governments were present, to consider a uniform law, was as far back as 1909. The provinces represented on that occasion were British Columbia, Alberta, Saskatchewan, Manitoba and Ontario. The regulations drawn up at that conference were adopted by the provinces of Alberta, Saskatchewan and Ontario.

The regulations then adopted, while good in their way, were not comprehensive enough, and left many points uncovered, so that there naturally arose differences of interpretation. Owing to this, a further conference was held in Ontario in 1914, at which the regulations were revised and amendments recommended, but owing to the outbreak of war, and the general disorganization which followed, these recommendations were not officially adopted.

Nothing more was done until 1918, when a further meeting of the interested provinces was held in the Manitoba provincial buildings, at which the whole question was thoroughly gone into, and consideration given to suggestions which had been put forward by manufacturers, boiler makers, etc. The regulations as drawn up at this meeting were submitted to the Boiler Code Committee of the Engineering Institute of Canada, the Canadian Manufacturers' Association, and others for criticism. After this, a meeting was held in New Westminster in 1920, at which final revision of the code was made after studying the reports received. It will thus be seen that from the time of the first consideration of this question until its final adoption a period of thirteen years has elapsed. Of course, there is no doubt that the war threw things back to some extent, but in any case, it is evident that at least eight or nine years would have been consumed in effecting this very desirable reform.

It is an excellent thing from the point of view of the boiler manufacturer, and also of the boiler purchaser. It ensures the manufacturer the opportunity of building a boiler that will comply with the regulations in any province, while the purchaser has no fear of buying a boiler in Ontario that will not pass inspection in Manitoba, and vice versa. The regulations adopted have also provided for the use of boiler material which has been made to the specifications of the British Board of Trade, so that a manufacturer importing his plates, or a firm importing boilers from Great Britain will not be penalised.

Practically every province, with the exception of New Brunswick and Prince Edward Island, have adopted these regulations, and it will most likely be but a short time until they are in force in these latter provinces. The advantages of uniformity are too many for them to be neglected by any modern government department or private business concern.

Watching Your Collections

"TOO MANY plumbers are hesitant in forcing payment of long outstanding bills against families which have been trading with them for years. They take the attitude that they are good and will eventually pay up, and for the sake of old friendships don't like to force them into payment for fear of alienating associations and losing their trade." Thus spoke a credit man connected with a large wholesale institution to the writer recently. There is undoubtedly good grounds for the above assertion and we could even go a little farther and add that some plumbers make little effort to collect any account be it long outstanding or not. Apparently they are quite content to sit back and wait until the customers are good and ready to pay up.

At this period in the year when the business has been inventoried and profits and perhaps losses are being tallied, there is no better time to get after some of the slow pays and for the plumber to establish a system of credit which will bring in the money more promptly.

One good rule to follow is to adhere rigidly to a set time when accounts should be paid. An understanding should be had with customers as to when that time should be. A plumber may find he has some customers who get a weekly pay envelope while others get theirs fortnightly or monthly, but whatever the credit limit is, the plumber should see that the account is settled on the date specified. This may mean losing a few accounts, but once a credit policy is determined and adopted, it will not be long before the trade will come around, willing to play the game according to the rules of the plumber.

Keen competition and the establishing of cash and carry stores are two factors which are working hand in hand to eliminate "long time accounts" but to help the good thing along it needs the shoulder of every plumber at the wheel. Outstanding accounts of long duration should be cleared up. Bills should be collected promptly. No balances should be allowed to accumulate and a firm policy of credits should be adopted and enforced.

Character Through Advertising

WHILE attending a recent convention, of which an exhibition of manufactured products was a feature, a large buyer observed that he, more or less unconsciously, felt a keener interest in those goods that were always most consistently advertised. This feeling he attributed to the fact that he had been made familiar with those lines through their advertising, and felt that he needed no introduction in his visit of inspection to their displays.

Another phase of the same matter was commented upon by the president of a manufacturing concern doing an export business. He emphasized the fact that advertising was valuable to salesmen because it prepared beforehand those territories with which he was unfamiliar. In other words, the advertising preceded the salesmen and did a certain amount of pioneering work for them.

Advertisers are sometimes inclined to overlook the development work that is always going on through the columns of their trade newspapers. It emphasizes the fact that an advertising appropriation well placed is of the nature of an investment.

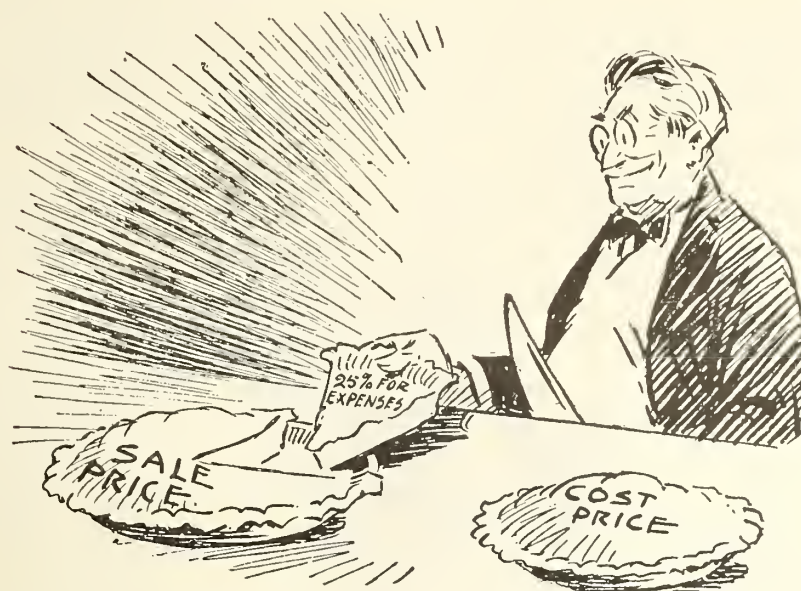
Two years ago ribald journalists were commenting elegantly on the advertising of deodorants for ladies; to-day we find advertising of deodorants for men.

Now that every well-regulated hotel and apartment is supposed to have at least as many baths as rooms, is a reaction starting?

MINUTE MESSAGE

Written for "Sanitary Engineer" by FRANK STOCKDALE

(Profit Figuring Series)



Take a Tip from this Fellow—He Cuts the Right Pie

WHEN you say your cost of doing business is 25%, or whatever it happens to be, you mean 25% of the sale. And you are right.

The reason is that you divided the total amount of your expenses by the total amount of your sales to get this 25%. 25% is the same as a quarter of the pie and it is plain to see that a quarter of the cost pie is not as much as a quarter of the sale pie.

There is no chance for you to get anything out of the small pie, because that goes to the wholesaler or manufacturer who sold you the goods. The one place to get your share is from the larger pie, and—

To get your share you must mark your goods right.

Suppose for example you want to make a net profit of 5% of your sales. What you want is 5% or 1/20 of the larger pie. In this case your gross profit or margin must be 25% to cover your cost of doing business and 5% for your net profit or a total of 30% of the sale.

The total sale, of course, is 100% and if the margin (gross profit) is 30%, the cost of the goods must be 70%. If the cost of your goods is 70% of your sale, then divide your cost by 70 and you have the right selling price.

Apply this to any article in your store.

First cost of goods \div (100%—gross profit) = selling price.

Example: $\$1.40 \div (100\% - 30\%) 70 = \2.00 .

Substitute your own figures. You can depend on this method. It always works out right.

THINK IT OVER—APPLY IT IN YOUR BUSINESS

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(Exclusive Publication in the Plumbing Trade in Canada)

"Landing Old Sigh Low for a Compleat Plumbing and Heating Job"

Jerry Continues His Relation of Experiences Commenced in Last Issue, Showing His Progress With Old Sigh Low

With apologies to Ring Lardner, by MAJOR L. L. ANTHERS, Managing Director
Anthes Foundry Company, Toronto

Tarraboome, Feb. 26, 1923.

Dear Friend Al—

Well, Old Cock, Ime still on the traile of Old Sigh Low. Ive swoarne to miself that Ime goin to land the old chinwhisker for a compleat plumbing and heating job, and wen I make up my mind to put ennything over—well, you know me Al.

I tolde you of my 1st visit and as how I left sum catalogs & kutz & etc. with him beesides a cuppla nocksious wead torches, like the kind my friend Johnny Yowston of the Robberson Co. smoaks.

Nxt. time I goes 2 sea Sigh I startz abt. the middl. of the p. m. When I gets their I walks boldcly threw the gait and up 2 the front dore. I nox severial timse but theirs no response. I finely went arnd. 2 to the bak, & their I scene an old dame climbin up the hill with a pale of water.

I hurried down 2 her & sez, "Hear laidy let me carry that." She was 2 suprizd 2 offar enny resistns. as I tuk the pale frm. her.

"Do you have to go all the weigh down their for water?" I sez, indycatin the barn yard.

"Oh Ime ust 2 it," she sez. "Ive bean doin it fer 40 yrs."

"Forty years," I exclmd. "Why you musta bean a babie then."

Honest 2 goodness she lookd abt. 90 but its always fatel 2 tell a womman the trewth where her aige is concernd.

The old dame smiled and shook her hed. "A purty big one," she sez, "seen as I was married."

"Aw gwan," I came bak, "I guess it jest seams like 40 yrs. Is Mr. Low around?"

"Hees down in the lower feeld, but he & the men will bee along for supper before long. If you dont mind a walk you kin go down their if your in a hurry," & she pointed out to where the old geezer was pushin a plow abt. a ¼ of a ml. away.

"Oh Ile wait," I respondz careless like. "Ime in no hurry."

2 tell the honnest trewth I had come early on the chanct that the old boy wld. bee out of the weigh and 1 cld. get a slant at the old laidy. If you kin get the wimmen 2 yr. weigh of thinkin ½ the batl is 1. So I interdooced myself & told her all abt. the wunders of modern plumbing & heating.

"If your the gent what left them books hear last wk.," she sez. "Ive bean lookin them over—but Ime afraide their 2 xpensif."

"Dont you bleeve it mother," I sez in my most engraishiating manor, "not when you figger all you get fer yer money. Whats the good of monney if you dont spend it on the comforts of life? Youve got a good farm hear and lots of money in the bank—why not live in



comfort and have conveyenances like city fokes has?"

"I gess your rite," sez the old dame with a sie, "but its hard to make my old man see things that way. But I bleeve hees thinkin abt. it tho he dont say nothin. When he think nobodys lookin he goes over thoze books you left last week & yesterday I see him go up-stairs with a yard stick & 1 of thoze books in his hand."

"Good news," I xclames, "hees fallin."

"Hees what," said the old sister lookin around scared-like.

"Only an xprsn. meanin weeve got him goin; Ile betcha a slop-sink 2 a pale of potatoes youll hev plumbing in hear in lessn a month."

The old dame smiled but shook her hed. I new she felt it was 2 good 2 be trew.

"Well hear he comes," she announces, looking down the road & sure enuff old whiskers & his gang were headin our weigh for the evenin banquit.

The old laidy hustled inside wile I waited fer old alfalfa-chin to come up and k'ck me off the lot.

Unbenoticed to me the Heavings had become overclouded & while Si was still abt. 3 base hits off old Jupiter Polluvius begin to spill in rite earnest.

This give me an xcuse to keap under the verandy. The hirde men hed switched off to the barn with the hoarses but Si kept rite on 2 the house. I hed that feeling of wonderin jest ware he was goin to bite me 1st, but Ide maid up my mind to stick like grimm dethe.

"Good evein Mr. Low," I sez as affible as I cld. with a week hart.

"Huh," he grunted. "Good evenin." So far so good. He warnt goin to bite ennyway.

"Goin to rain I guess," I contd. fol-lerin up my addvantage.

"Purty good gesser aint you?" he come back a little sourcastic like.

It was a bum remark I addmit, but yule agreea the conditns was tryeing. However he didnt order me off the premmises so I begin to feal more at eeze. I watched the old geezer dip some water into a tin basin & then perceed to try and reemove a pek of dirt with a qt. of water. Wen he thot heed gone the limit he tries to dry hiself on a roaler towl witch hung at the side of the verandy but witch towl was wetten his faice on ac. of the rain driven in & etc. Wile the towl was no grate sucess at driefing, it did make up for the unsufficiency of the water fer accordin to apeariences after Si had performed his absolutions their was more dirt on the towl than they was in the basin judgin by looks.

I maid a mental note of all this intendin to use it when the proper time come.

The rain hed settled down purty stiff & steddly and I begin to think Ide hev my troubles gettin home on ac. of the roads & etc if I waited much longer. But my currage wasnt registerin high enough to maik a brake for it.

The hirde men come along in a few minits & looked me over.

"Good evenin," they sez seamin enclined to be friendly-like & I replied in like manor.

Then they went at the wash basin & the wet towl. They tride to dry the towl by usin some hot languidge on it but it didnt do no good & they had to wiggle there faices like rabbits to dry them in the wind.

"A shower'd go ood," I sed casual-like.

"Aint we gettin enuff," sez 1 of the

hirde men lookin up at the sky.

"Oh I meen a shower-bath," I sez.

"Bath 'ell—hot chanet around hear," sez the other feller under his voice so the old man who had gone inside eldnt here.

I eld. smell supper cookin & bleeve me Al it smelt good. I begin to reelize I was hungriern a starved wulf. I eld. heer the old man & woman inside talkin in undertones, & I begins to feel cheep like what a feller does when the conductor asts him sudden fer his ticket & he can't find it.

Finely I herd the old man say, "Better ast him to stay."

With that the old lady came to the kitchen door and meerly sez, "I'm settin a plaice fer you."

Honest to goodness Al, I felt like what somebuddy had give me a wallup in the souler plecksus.

I tride to murmur some xcuse but the old laidy was gone back into the kitchen.

"Should I stay," I ast my inner conscience of myself. "Dampfool if you dont," sez my inner conscience, and that settled it. Somethin seamed 2 tell me that opertunitie was nockin at the dore so I staid.

It was a libberal edycation to see them hirde men fawl 2. The old man may hev a rep as a tite-wad but he new how to feed hirde men and the old laidy new how to cook it. Talk abt. eatin peeze with a nife, they wasn't nothin the old man eldnt eat with hissn. He had me hypnertized.

But as time pergressed I felt it was up to me to do some stunt to make up fer my feed. The old mans nife act had ennything I eld. do backed off the map, but I hev a loose tung and I know baseball and when I talk baseball the gang has jist nactely got to lissen—you know me Al. I side-stepped enny ref. to plumbing but give a luminated treaties on baseball as she should be played and has been played and wasnt enny more. Them talks Johnny McGraw is runnin threw the noosepapers is all rite in its weigh but wen it comes down to intymate stuff McGraws not their. Does he make enny ref. to you or mee in those artickles? You bet he doant. He nose who put baseball on the map but he wants the publick to think its McGraw. But we know, dont we Al? You bet we do.

So I let these hicks into some of the inside doap and if they didnt soon tumble as to hooze hoo in baseball well it wasnt my fault. You know me Al.

Well, after supper was over the stok hed to be milked and fed and bedded, so I went down to the barn with the gang.

It hed stopped rainen and the sun was just abt. wirkin good nite threw some bloody tear-stained clouds and as their was a good gravel walk I didnt worry abt. gettin my feet wet. The stock was holding a convention around the water trowfs and 1 of the hirde men begin to pump. I noticed the water looked a little riley but he sez it was always like that after a rain. A littl of the serfice water always leaked threw. I maid annother mental note rite heer.



Talk about eating peeze with a knife. They wasn't nothin' the old man couldn't eat with his'n. He had me hypnertized.

I hed took a new brand of cigars with me and passed them all round after we was on the weigh 2 the house agen. They was good wons and even the old man noticed that fact. The old feller didnt seem so bad after you git to know him and soon I interdooced the delycate subject of plumbing. As he didnt seem to object but got down on a chair in the corner of the verandy as if he had maid up his mind he mite as well lissen to the bitter end. 1st as finis., I was soon warmin up in good shape. Befoar long the hole family, hirde men and awl was listenin jist the same as wen I was talking baseball. Oh boy but I did put my hart in it. No Mother eld. hev pleaded with a judge over her weighward boy with greater fervor. The old man was unrestless at times as if his consceyence was trubbling him, especailly wen the old laidy wld. say, "Oh my, Oh my." Onct the old laidy actly wept. It was wen I maid reference to young fokes leavin the farm. I find that uslly hits a soft spot in the wimmin. Why? Because its the trewth.

Finely it was time to go home, and I thanked them fer the nice time I had and sed Ide call agen. I invited them all to pay the shop a visit wen in town and no oblygations

The boys helped me start the lizzy as she always get a water jag on wen she hez been standin in the rain, but I got away finely, everybuddy but the old man wavin good by. He was busy thinkin and I was hopin it was plumbing he was thinkin of.

I was feelin pretty good goin hoam as I felt that job was well on the way to be landed. Shure I didnt hev the contrack in my pokt, but the spaid werk hed bean done.

Wen I get time Ile tell you wat happened laiter on.

Yourse & etc.,
Jerry.

METERS WOULD SAVE MORE

London, Ont.—General Manager E. V. Buchanan of the public utilities, pointed out that enough money can be saved through the meter system, either to reduce the water rate, or, after paying for the purchase and installation of the meters, within two or three years, turn a large annual surplus over to the city treasury, which would go to materially reduce the tax rate.

News Notes From Coast to Coast

Doings in the Plumbing and Heating Industry

FIRE LOSS

J. E. Rouillard, plumber, Quebec City, suffered fire loss.

FORT ERIE PLUMBER LEFT LARGE ESTATE

Welland, Ont.—Charles E. Harris, a plumber of Fort Erie, whose will is filed for probate, left an estate of \$15,500.

NEW FIRMS

Ramsay & McIntosh, Limited, have opened up a new plumbing shop at 114 Jarvis St., Toronto. Both Mr. Ramsay and Mr. McIntosh were formerly connected with W. G. Edge, Limited, and carry the good wishes of all their friends for success in their new endeavors.

PERSONAL

C. E. Burnett, president of The Duro Pump & Manufacturing Co., Dayton, Ohio, has just returned from a vacation in the Bermudas, where he enjoyed a complete rest for the last month.

C. A. Kuebler, general sales manager and H. I. Field, Eastern sales manager of the Duro Pump & Manufacturing Co., Dayton, Ohio, are in Cuba looking after some of the foreign interests of the Duro Co. They will also conduct echo conventions throughout some of the southern distributing points upon their return to Dayton.

THIEVES LOOT SAFE IN PLUMBING SHOP

Windsor, Ont.—Gaining an entrance by means of a front door that had been left open, burglars robbed a safe in the office of the Edwards' Plumbing shop, London and Church streets, of \$150.

When the police arrived at the scene of the robbery they found that not only the front door but the door of the safe had been left unlocked and it was a simple matter for anyone to walk in and help themselves to the safe's contents. Whoever removed the money left no clue to his identity.

STEAMFITTER MEETS FATAL ACCIDENT

Toronto.—Ray Metcalfe, aged 19, died in the Western Hospital of a fractured skull as the result of falling down an elevator shaft at the Samuels Building, 431 King Street, West.

Metcalfe was a steamfitter employed by the Western Plumbing Company, and he and his helper were fixing some pipes on the third floor of the Samuels Building. While the helper was absent on an errand, Metcalfe in some as yet unexplained manner fell down the elevator

shaft. His body was found in the well in the basement. No one saw the tragedy. Metcalfe was picked up and removed to the hospital, where he died a short time after admittance.

NO EXCUSE

Hamilton, Ont.—Alex. Bonner, business agent of the Plumbers' and Steamfitters' Union, stated that business in that trade is quiet at present, and that quite a few tradesmen are out of work. In view of this, he said, the reason given by the house owner in police court that he had not been able to make sanitary improvements ordered by the board of health was a very poor one.

REPORTS BIG INCREASE IN BUSINESS

W. H. Cunningham of W. H. Cunningham & Hill, Richmond St. West, Toronto, stated to a Sanitary Engineer representative that his company had noted a marked increase in business during the past few months, and so far as his own company was concerned they had an increase of 100 per cent. in their business during an eight-month period. Another indication of returning prosperity pointed out by Mr. Cunningham was that their company when they closed their books for the year, reported losses from bad debts as amounting to \$12.60. This is a most unusual record and is an indication of the soundness of the trade at this time.

Mr. Cunningham is exceedingly optimistic regarding the future in the plumbing trade in Canada.

EXPERT ADVICE ON WATER QUESTION

Kingston.—At the inaugural meeting of the Public Utilities Commission it was decided that first the commission would have to consider the question of water pumping. Altogether too much water was pumped by the Kingston station, the total amount being over four million gallons a day, or about from 175 to 200 gallons per capita. The average water consumption of cities was from sixty-five to seventy gallons per capita. It cost money to pump water. The leaks would have to be reduced wherever they were. The second big question before the commission would be the purification of the water supply. This was a matter that would require the greatest consideration and the advice to the commission was to not be stampeded into doing anything without the fullest information. The best expert advice was needed.

LEAVE TAPS RUNNING ALL NIGHT

Montreal.—While it is impossible to judge accurately the amount of extra water being thus consumed, much extra pumping has been required in Montreal this winter on account of people leaving their taps running all night long to avoid freezing. It is estimated that as many as 30,000 taps are open at night. Such a large flow of water increases the demand on the pumping service with the result that the winter peak has on occasions been higher than the summer peak.

PUMPS FORCED TO DO MUCH UNNECESSARY WORK

Montreal.—Local waterworks officials puzzled for a week over the mysterious reduction in the level of water at the McTavish Street reservoir where a drop of over four feet had taken place some days ago and had been maintained, with the result that the pumps were forced to do extra work to keep up the necessary supply. On investigating it was found that the twelve-inch pipe which serves this street had broken. There was no evidence on the surface to indicate any leak, it being found that the escaping water, instead of forcing its way upward to the street, had found a weak point in the brick sewer and had been flowing into it, thus draining much of the reservoir reserve.

WATER PIPED THROUGH TREE TRUNKS

Relics of ancient water pipes, consisting of the hollow trunks of very fine elm trees were recently dug up in London. These wooden conduits, although they had been laid down more than two hundred years ago, were still in a wonderful state of preservation. Up to the early part of last century the New River Company had laid several hundred of miles of wooden pipes. But they needed so much attention and repairing that they were replaced by iron piping at a cost of 300,000 pounds. Another advantage of the change was that whereas the tree trunks had a bore of a few inches only, the metal substitutes measured several feet across. Consequently a much greater volume of water was obtainable. In those days the water for London came either from the waterworks at London Bridge or from those of the New River Company. Before this, the water was obtained from the Thames or the springs which arise in the elevated ground on the north or west of the city. It was conveyed by means of earthen or leaden pipes to different conduits or fountains erected to receive it.

Waterworks Men Discuss Water Purification

Delegates to Meeting of American Water Works Association in Toronto Consider Violet Ray and Other Means of Purifying Water

SOME 150 delegates, including a number from Quebec and the United States, registered at the mid-winter meeting of the Canadian Section, American Water Works Association, in the Carls-Rite Hotel, Toronto. In the absence of Mayor Maguire, the convention was welcomed at its luncheon by Commissioner of Works R. C. Harris.

In extending the official welcome of the city, Mayor Maguire took occasion to comment upon the purity of Toronto water since the installation of a filtration plant. He recognized the responsibility which devolved upon them in guarding the public health of their respective municipalities.

With the liberal use of charts and blackboards, different speakers discussed water works problems. Prof. R. W. Angus, of the University of Toronto, read a scholarly paper upon intakes, drawing upon his extensive experience in laboratory work. F. A. Dallyn, provincial sanitary engineer, contributed a paper which dealt with the preparation of water for filtration. He weighed the comparative merits of various chemicals in destroying what he termed "the bacteriological efficiency of water."

Some discussion centred about a recent act which requires firms equipped with the sprinkler system to have dual checks between the private system and the main. The reason advanced for such legislation was that water frequently remained in the firm's tank for lengthy periods, and, on getting back into the main, contaminated the city water supply. Several members thought that an unnecessary inconvenience was being occasioned the firms.

Quite an extensive exhibit of equipment and chemicals employed in water works systems was situated on the same floor. Of interest, as marking the innovation in Canada of the preparation of liquid chlorine, was a huge cylinder container of that deadly gas. It was being used in that form for the chlorination of water in preference to chloride of lime, as the latter contains only about 35 per cent. chlorine.

The officers of the Canadian section are: Chairman, R. L. Dobbin, Peterboro, who presided; vice-president, F. A. Dallyn, Toronto; trustees, R. H. Starr of Orillia, N. R. Wilson of Brantford, and James J. Salmond of Toronto. The secretary-treasurer is C. D. Brown of Walkerville, Ont.

Members spent a profitable hour or two in a discussion of the methods of purifying public water supplies. The discussion was based on the paper recently prepared by Norman J. Howard, bacteriologist in charge of the Toronto filtration plant. The paper dealt in detail with various methods, such as sedi-

mentation or storage, slow sand filtration, mechanical or rapid sand filtration and sterilization. Under the last head the reagent properties of chlorine, ozone and violet rays were discussed.

The treatment by violet rays was stated to be very effective but rather costly. The treatment consists in the exposure of the water to the rays from an electric mercury vapor lamp with walls of quartz. Exposure to the rays not only kills bacteria, but imparts a potential sterilizing power which kills bacteria subsequently encountered. This method has not been found practical for very large plants, however.

In the discussion members from different parts of the Dominion gave their views on the different processes and the general trend of the discussion showed that no particular system could be singled out for special commendation, as the question resolved itself into one that was dependent on the different elements

SEPTIC TANKS DISAPPEARING IN ST. JOHN

St. John, N. B.—Septic tanks and cess-pools will soon become a thing of the past in St. John, N. B., as the whole area is rapidly being linked up with the sewerage system. Splendid progress is being made with a new trunk sewer, and owing to the nature of the soil, the commissioner of water and sewerage states that headway is made much more rapidly during the cold weather, as the frost in the ground does away with the necessity of lining the trench with timber to keep it from caving in, thereby lessening the expense considerably.

He phoned his fiancée, aged twenty-four, that he was sending her a rose for every year of her age. To the florist he gave the order to send the lady two dozen of the finest roses he could procure.

"He is a very good customer," remarked the florist to his assistant who was packing the bouquet, "so put in an extra half dozen."

That is how the engagement was wrecked.

Fred Holliday is Appointed Advertising Manager of "Sanitary Engineer"

Also other additions to the staff

SANITARY ENGINEER, Plumber and Steamfitter of Canada is glad to announce the appointment of Fred Holliday as Advertising Manager.

Mr. Holliday has had many years' advertising experience, particularly in connection with lines closely allied with fields served by this paper. Mr. Holliday has also had wide experience in publication work, having been connected with publications such as Construction, Western Canada Contractor and other well known publications. The coming of Mr. Holliday to Sanitary Engineer Advertising Department will add strength to an already strong department.

Mr. B. C. Culley has been appointed advertising representative in Montreal. Mr. Culley has had considerable experience in trade publication work with the MacLean organization.

Mr. O. T. Martin with four years' editorial experience, has been appointed to the editorial staff of Sanitary Engineer at the Montreal branch and will cover the City of Montreal and Quebec province.

Mr. F. R. McKinley has recently been added to the Editorial staff at the Toronto office. Mr. McKinley is well known among the trade, having done business with many firms when in business in Parry Sound.

The next issue, March 15, will carry several new features, and in the April 1 issue an announcement of unusual interest will appear regarding a new editorial development of Sanitary Engineer.

Market Conditions and Tendencies

Price Trend on Sanitary and Heating Supplies

Markets at a Glance

H EAVY price changes feature the local markets for this week. Many of the changes have been forecast in recent reports from primary market sources, but the upward trend of prices has spread to other branches of the trade and higher quotations have resulted.

The latest advances include $3\frac{1}{3}\%$ on enameled goods which are now quoted at list less 30% whereas formerly the discount was $33\frac{1}{3}\%$, an advance of about 10% on galvanized sheets. Sap buckets and blow torches, as well as a further advance of about 10% on galvanized sheets. Scrap materials have firmed up locally, new quotations

being from 5% to 15% higher on carlot quantities and further developments are said to be the possibility in cotton and tin goods.

The advance in solder noted, is the result of several raises in price which have occurred in tin and lead at primary sources, the new quotations are being rigidly maintained.

The recent optimistic feeling evident in local trade circles is being borne out by business activity, evidences of which are to be seen daily. Reports indicate a substantial increase in volume of business over last year will be reached.

Montreal Markets

MONTREAL, Feb. 26:—The upward tendency of the market is reflected in recent price revisions in several lines, while in a number of others where the quotations remain unchanged there are indications of an upward revision in the near future. One of the most important changes noted is the revision in discount on enameled wares where a $3\frac{1}{3}$ per cent. change has taken place, the new discount being 30 per cent. as compared with the previous discount of $33\frac{1}{3}$ per cent. Zinc and lead products have undergone a general revision, all solders increasing one cent per pound and lead pipe and waste advancing half a cent. A slight upward change has also been announced in copper and brass scrap. Sheets are expected to advance at the end of the week, a twenty-five cent advance having already been made in Queen's Head and Fleur de Lis lines of English galvanized.

SLIGHT ADVANCE IS QUOTED ON ENAMELED WARE

Montreal.

Enameled ware has taken a slight advance during the past week, discounts now being quoted at 30 per cent., whereas the former discount was 33 1-3 per cent. Spring trading has not yet opened up to any appreciable extent but early season sales are maintaining a firm undertone. The present quotations are as follows:

ENAMELED WARE—

Sinks, roll rim—	
18 x 30	\$23 00
Sinks, flat rim—	1 only 2 only 3 only
16 x 24	\$ 7 50 \$ 7 40 \$ 7 30
18 x 30	8 70 8 60 8 50
20 x 30	9 90 9 80 9 70
Bath tubs, roll rim, 4, 4½, 5 feet, 24 to 30 in. wide.....	51 40
Bath tubs, 5½ feet.....	57 10

Lavatories—

17x19 in. Apron F139 or P4045.....	15 30
18x24 in. Apron F154 or P3845 or P3847	23 60
18x21 in. Apron F169 or P4205.....	17 60
17x19 in. Roll rim. F241 or P4345.....	12 60
Less 30 per cent.	

FIRM MARKET MAINTAINED IN SOIL PIPE AND FITTINGS

Montreal.

Although sales are affected by the off season, local manufacturers report a satisfactory state of affairs so far as soil pipe and fittings are concerned. Rising productive costs have given the market a strong undertone and the prices quoted recently are maintained without difficulty. The quotations at present are as follows:

SOIL PIPE—

2 and 3 inch	35%
4 inch	35%
5 and 6 inch	36%
8 inch	net

FITTINGS—

2 to 6 inch	45%
8 inch	net

TRADING REPORTED LIGHT IN CLOSET COMBINATIONS

Montreal.

Quotations on closet combinations, bowls, seats and tanks remain unchanged at recent decreased revisions. Trading on the local market is not heavy

as yet but indications point to a successful season with trading brisk within the next few weeks. Current quotations are as follows:

CLOSET COMBINATIONS—

Low Down Outfits,	each
Closet, standard outfit, oak.....	24 00
Do., post hinge seat	25 00
Do., oak vitro or Pussyfoot.....	24 00
Do., post hinge seat.....	25 00
Do., mahogany vitro or Pussyfoot, post hinge seat and cover	27 45
Do., vitreous china, oak post hinge seat and cover	28 45
Do., vitreous china, mahogany post hinge seat and cover	29 00
Do., white vitro or Pussyfoot, mahogany post hinge seat and cover.....	27 50
Do., enamelled iron tank, oak post hinge seat and cover	29 50
Do., enamelled iron tank, mahogany post hinge seat and cover	29 50
Add for ¾" valve on supply pipe.....	1 25
Add for spud	0 60
Add for reverse trap bowl	1 00
Add for syphon jet bowl.....	7 00
Deduct for supply pipe	0 80
Deduct for floor hinge	0 60

CLOSET BOWLS—

Richefeu bowl	8 00
Washdown bowl with spud	9 50
Reverse trap bowl with spud.....	9 50
Syphon jet bowl with spud.....	15 00

CLOSET SEATS—

Oak post hinge seat and cover.....	3 85
Oak wood strip seat and cover.....	3 50
Mahogany finish post hinge seat and cover	4 05

CLOSET TANKS—

Low down, oak vitro or Pussyfoot with fittings less seat	13 20
White vitro or Pussyfoot with fittings, flush elbow and supply.....	15 65
Vitreous china tank with fittings, flush elbow and supply	18 00
Enamelled iron with fittings, flush elbow and supply	18 00

FURTHER UPWARD REVISION IN LEAD PRODUCTS

Montreal.

Lead and zinc products have shown a generally upward tendency of late, a more or less general price revision having been experienced. Solders, both bar and wire, are advanced one cent per pound, this making the second increase in the past three weeks. Lead pipe and waste are one-half cent higher, while

lead sheets in all weights show a corresponding tendency. Metals on primary markets are very firm, prices of lead and tin being again on the climb. Revised quotations on the finished products are as follows:

LEAD AND ZINC PRODUCTS—

Lead pipe, per 100 lbs., up to 2"	14 00
Do., 2" to 8"	15 00
Do., 8" and over	16 00
Lead waste, per 100 lbs.	15 00
Note—Lead pipe is subject to a discount of 10%.	
Lead traps and bends	15%
Lead wool, lb.	0 14½
Lead sheets, 2½ lbs., sq. ft. lb.	0 12
Lead sheets, 3 to 3½ lbs., sq. ft. lb.	0 11½
Do., 4 to 8 lbs., sq. ft. lb.	0 11
Cut sheets, ¼ c. lb. extra and cut sheets to size, ¾ c. lb. extra.	
Solder, guaranteed, lb.	0 28
Do., strictly, lb.	0 25
Do., commercial	0 24
Do., wiping, lb.	0 24
Do., wire, lb.	0 38½
Zinc, sheets, casks	0 11
Do., broken lots	0 12

ASBESTOS PRODUCTS PROMISE SPRING ACTIVITY

Montreal.

The local asbestos products market is quiet at present, little new business being offered and dealers well caught up with orders on hand. Inquiries being received, however, indicate that the latter part of March will see the opening of a brisk spring business which will reach its full development in April. Prices being quoted show no change during recent weeks, current quotations being as follows:

ASBESTOS PRODUCTS—

	Off list prices
2 ply pipe covering	57½%
3 ply pipe covering	55%
4 ply pipe covering	50%
85% magnesia	40%
	Per bag
Boiler covering	\$1 50
	Per 100 lbs.
Asbestos sheathing	7 75 8 25

BOILER TUBE QUOTATIONS SHOW NO CHANGES

Montreal.

Movement of boiler tubes shows a slight improvement and will continue to do so as the season advances. There has been no revision of prices since higher prices were quoted earlier in the month, although there is a slight intimation in some sources that another small advance is not out of the question. The quotations at present are as follows:

BOILER TUBES—

	Seamless	Lapweld
1 inch	20 00	....
1¼ inch	22 00	....
1½ inch	21 00	....
1¾ inch	24 50	24 00
2 inch	21 50	20 00
2½ inch	24 50	23 00
2 inch	29 00	24 50
3 inch	34 00	31 00
3½ inch	39 50	35 50
4 inch	50 00	45 00
Prices, per 100 ft., f.o.b. Montreal.		

COTTON WASTES CONTINUE ON FIRM BASIS

Montreal.

Market quotations on cotton waste still remain at the January revision on the local market with a firm undertone to the market. It had been expected in some quarters that an upward revision would take place on March 1, but the local situation does not warrant the change at the present time, although

there is little doubt but that it will come within a few weeks' time. In the meantime quotations remain as follows:

COTTON WASTES—

	Per lb.
Cream polishing	0 21
White, XXX extra	0 18
White, XX grand	0 17
White XLGR	0 16
X Empire	0 14½
X Press	0 13

Colored—

Fancy	0 15
Lion	0 13½
Standard	0 12
Popular	0 10
Keen	0 08

Wool Packing—

Arrow	0 25
Axle	0 21
Anvil	0 17

Dominion Wipers—

White cotton	0 18
Colored cotton	0 13

NO CHANGE IN QUOTATIONS ON RANGE BOILERS

Montreal.

There is no change in the quotations on range boilers, the market having remained stationary for some time now. Trading is described as not particularly heavy with a firmer trend anticipated in the very near future. List prices and discounts are as follows:

RANGE BOILERS:—

5 Gallon	\$13.50
12 "	14.00
18 "	15.00
25 "	16.50
30 "	17.50
35 "	20.50
40 "	22.75
52 "	38.00
66 "	60.75
82 "	74.00
100 "	103.00
120 "	117.00
144 "	164.00
168 "	187.00
192 "	210.00
Std., less 40 per cent.; Ex. Heavy, 30 per cent.	

STRENGTHENING TENDENCY IN COPPER SCRAP

Montreal.

A firmer tone is noticed in practically all lines in the scrap materials market, copper and brass waste showing a slight increase during the past two weeks. Rubber scrap is firm at recent advances and iron and steel is improved, although nominal quotations are unchanged. Average buying prices of local dealers are:

SCRAP MATERIALS—

Automobile tires	0 50
Rubber shoes	0 03
Yellow brass	0 05½ to 0 06
Red brass	0 09
Light brass	0 04½
Scrap zinc	0 04¾
Lead, heavy	0 05
Lead, tea	0 03
Light copper	0 08½ to 0 09
Heavy copper	0 11¾
Wrought iron, R. Rd., No. 1, per gr. ton ..	12 00
Malleable scrap (ton)	9 00 to 10 00
Pipe scrap (ton)	7 00
Heavy melting steel	9 00
No. 2 busheling	3 00
Boiler plate	3 00 to 9 00
No. 1 machinery cast	20 00 to 22 00

FIRM TONE MAINTAINED IN PIPE FITTINGS MARKETS

Montreal.

Trading in pipe fittings continues with a firm tone which may have a tendency towards increased price within a very short while, labor and fuel troubles making delivery uncertain at present. In the meantime, there is no change in the quo-

tations on the local market, they being as follows:

PIPE FITTINGS—

Cast iron fittings	22%
Plugs, cast iron	25%
Do., solid	22%
Do., countersunk	22%
Bushings, cast	25%
Do., malleable	25%
Unions	40%
Flanged unions	22%
Flanged fittings	27½%
Dart unions, black, ½ to 2 in.	331-3%
Do., ¼ in., 2½ in., and larger.	23%
Do., galv. add to black	30%
Nipples, ½ to 4", close and short.	50%
Do., long	55%
Do., 4½ to 8", close and short.	40%
Do., long	45%
Couplings, 4" and under	25%
Do., 4½" and larger	5%

Malleable Fittings—

Piece list effective June 1st, 1922. Discount 68 per cent.

NO CHANGES ARE RECORDED IN COMPRESSION GOODS

Montreal.

There have been no changes in the price of compression goods since the last lists issued but with the upward tendency of the primary markets, there is some likelihood that an upward revision may result shortly. Present quotations are as follows:

VALVES AND BIBBS—

Compression work, standard	45%
Fuller work, standard	30%
Quick opening compression bibbs	43%
Bath cocks, quick opening	41%
Bath cocks, compression	41%
Basin cocks, quick opening	46%
Flatway stop and waste cocks, standard ..	56%
Roundway stop and waste cocks, standard ..	56%
Brass steam cocks, standard, ¼ in.	50%
Radiator valves, standard	55/25%
Do., removable discs	55/25%
Globe, angle and check valves, standard ..	25%
Gate or straightway	25%
Emco globe valves	33%
Emco check valves	33%
Jenkins globe, angle, check and swing check	10%
Jenkins gate or straightway	16%
Jenkins iron body, globe and angle	15%
Jenkins iron body, gate	25%
N P. "O" and "S" traps	40%

RADIATION PRODUCTS STEADY AT REVISED DISCOUNTS

Montreal.

Radiation quotations remain unchanged from the last listing. There has been a continued firm undertone in these products. The following are the prevailing quotations:

RADIATORS AND BOILERS—

Radiator list prices are for 1, 2, 3, 4 and 5 column radiators, per sq. ft.
45 in. to 38 in., \$1; 32 in., \$1.10; 30 in., \$1.15; 26 in., \$1.20; 23 in., \$1.26; 22 in., \$1.30; 20 in., \$1.36; 18 in., \$1.40; 16 in., \$1.50; 14 in., \$1.55; 13 in., \$1.60. Discount 51 per cent for hot water, and 52 per cent for steam.
Wall radiators—5 ft., \$1.15; 6 ft., \$1.10; 7 ft., \$1.05; 9 ft., \$1.05; 12 ft., \$1.05; Discount 48 per cent.

Boilers—Round hot water boilers, sizes from 0 to 10, 60 per cent. off list. Square or sectional hot water or steam boilers, 15 in., 15 per cent. Square or sectional water boilers, 19 in. to 36 in., 20 per cent. Square or sectional steam boilers, 19 in. to 36 in. 17 per cent. Ontario Government trimmings, 15 per cent.

Round steam boilers, standard trimmings, 28 per cent. Ontario Government trimmings, 25 per cent.

F.o.b. Montreal, Toronto, Guelph.

CEMENT QUOTATIONS REMAINING AT RECENT REVISION

Montreal.

While cement sales to-day are merely nominal, to remain so until the opening of the spring building season, local manufacturers declare sales to be of good

proportion. There has been no change in price since the six-cent drop of some time ago. Present quotations are as follows:

CEMENT—	
Car load lots, per bag. F.o.b. steam cars	0 86
Per Bag, delivered	0 94
Less car lots, per bag, f.o.b. yard—	
Per bag, delivered	0 94
Less 5 per cent	1 04
Rebate of 20 cents for empty bags.	

SAP BUCKETS SHOW REVISION IN AN UPWARD DIRECTION

Montreal.

A revision has taken place in the prices of sap buckets on the local market, an increase being made in all bucket prices. There has been no change in square syrup cans and spouts. Trading in the local market has been fairly good. The following are the new prices:

SAP BUCKETS—	
Straight Pattern—Per 100, No. 7, \$16.10; No. 8, \$17.50; No. 9, \$19.60; No. 12, \$21.00; No. 16, \$25.20.	
Extra Heavy—No. 12, \$25.90; No. 16, \$31.50.	
Frontenac—10 qt., \$22.19.	
Western Pattern—6 qt., \$15.75; 10 qt., \$21.00.	
Galvanized Straight—No. 9, \$23.00; No. 10, \$27.00; No. 12, \$27.00; No. 16, \$31.00.	
Square Syrup Cans, one gallon, \$16.75 per hundred.	
Spouts—Perfection, \$20.00; Eureka, \$17.00; Sterling, \$24.65 in lots of 1000.	

ENGLISH GALVANIZED SHEETS ARE ADVANCED

Mon real.

A 25-cent advance is announced in English galvanized sheets, the price having been increased by the makers in England. The new quotations on Queen's Head and Fleur de Lis, respectively, are as follows: 28 gauge, \$7.50 and \$7.25; 26 gauge, \$7.25 and \$7.00; 24 gauge, \$6.95 and \$6.70; 22 gauge, \$6.90 and \$6.65; 18-20 gauge, \$6.65 and \$6.40.

ADVANCED PRICES GENERAL IN METAL MARKETS

Montreal.

The metal market remains firm with tin and copper especially strong and the

former has shown a very sharp advance. The advance is a little too rapid to be healthy and while the situation is undoubtedly firm, a reaction temporarily would not be surprising.

TIN.—The London market registered a new high level on this movement of \$210 with New York on an equal basis. Speculation is quite active and consumers are naturally a little chary about buying at present prices. The local market is firm at 51 cents.

COPPER.—This is also very firm in London and New York and with buyers bidding against one another the market has been forced up considerably. It is difficult to buy at less than 17 cents refinery for electro. The local market is also firm at 20½ cents for electro and 20 cents for casting.

SPELTER.—This is also very firm in both London and U. S. A. and East St. Louis has touched a new high point at 7.70 cents. The situation appears strong at the moment and with stocks not very large a firm market may be expected for the next few months. The local market is firm at 10½ cents.

LEAD.—This remains steady with little change in prices and it is probable that there will not be much advance from present levels. The situation remains firm, however, with supplies none too plentiful. The local market is firm at 9 cents.

ANTIMONY.—The is very firm owing to lack of offerings from China and there is a keen demand for the little available. The local market is higher at 8¼ cents for English and 7¾ cents for Chinese.

ALUMINIUM.—This is also firmer in tone and the market has advanced to 24 cents per lb.

sinks and backs. Following is the list with the new discount now in effect.

ENAMELED WARE—	
Enameled Iron Baths, 3" roll rim, 4 ft., 4 ft. 6 in., 5 ft.	51 40
Do., 5½ ft.	57 10
Lavatories—	
17x10" Apron F139 or P4045	15 30
18x24" Apron F154 or P3845 or P3847	23 60
18x21" Apron F169 or P4205	17 60
18x21" Roll Rim, F197, F199 or P4655-6	15 40
17x19" Roll Rim, F241 or P4345	12 60
Sinks, Roll Rim, 16x24 in.	18 10
Do., 18 x 30 in.	23 00
Do., 20 x 30 in.	24 70
Sinks, Flat Rim— 3 only 2 only 1 only	
16x24	\$7 60 \$7 70 \$7 80
18x30	8 50 8 60 8 70
20x30	9 70 9 80 9 90
Above prices, list less 30 per cent.	

LEAD AND ZINC GOODS PRICES RISE

Toronto.

The steady advances in tin and lead prices have been reflected in quotations on solder. This is the second advance within a month and it is stated that the present levels will be well maintained in view of present primary market conditions. The new list follows:

LEAD AND ZINC GOODS—	
Lead pipe, per 100 lbs., up to 2"	14 50
Do., 2" to 8"	15 50
Do., 8" and over	16 50
Lead waste, per 100 lbs.	15 50
Note—Lead pipe is subject to a discount of 10 per cent.	
Lead traps and bends	15%
Lead wool, lb.	0 14½
Lead sheets, 2½ lbs. sq. ft. per lb.	0 12½
Lead sheets, 3 to 3½ lbs.	0 11½
Do., 4 to 8 lbs., sq. ft. lb.	0 11½
Do., 4 to 8 lbs. sq. ft. lb.	0 11½
Solder, guaranteed, lb.	0 29
Do., strictly, lb.	0 26
Do., commercial, lb.	0 25
Do., wiping, lb.	0 25
Do., wire, lb.	0 39½
Zinc sheets, casks	0 11
Do., broken lots	0 12

GALVANIZED SHEETS AGAIN ADVANCED

Toronto.

Galvanized sheet prices are again revised to higher levels. The steadily advancing prices at the mills and the scarcity of foreign sheets have caused local quotations to be adjusted to meet the new levels. It is pointed out that further advances may be looked for, if basic prices go any higher. The prices now in effect follow:

GALVANIZED SHEETS—	
	Premier and Apollo
10¾ oz.	6 65 7 00
U. S. 28 base	6 50
U. S. 26 base	6 20
22 and 24	6 05
18 and 20	5 90
16	5 75
12 and 14	5 60
	Queen's Head
28 gauge base	7 15 7 50
26	6 75 7 10
24	6 45 6 90
22	6 30 6 70
	Fleur de Lis
28 gauge, base	6 90
26	6 50
24	6 20
22	6 05

An extra 40c. per 100 lbs. is charged for Keystone and Premier bands copper-bearing sheets. An extra is now charged on galvanized sheets. 10¾ oz. and 28 ga., when shipped out in sheets 3 feet wide. The extra charged over prices shown in 20c. per 100 pounds.

FIRM TONE MAINTAINED IN SOIL PIPE PRICES

Toronto.

Increasing business in the soil pipe trade is reported in local circles. Prices have remained unchanged but dealers

Toronto Markets

TORONTO, March 1.—There are several important price changes noted in this week's market reports, all of which are in the upward direction. Among the more important are the new discounts on enameled goods, the advanced price on sap buckets, new higher lists on blow torches and the advance in copper rivets and burrs. Galvanized sheets are also quoted at higher prices.

The continued activity of primary markets has kept quotations in an uncertain state, particularly in ingot metals, iron, steel and sheet metal. Many dealers being afraid to quote definite prices, not knowing what replacement figures will be. This feeling is offset to some extent by the feeling that a wave of prosperity is at hand and that even if higher prices are reached, goods could be readily disposed of without loss.

SOLDERING COPPERS ARE AT OLD LIST

Toronto.

There has been no change in the price on soldering coppers. The rising prices of ingot copper, however, are expected to have an effect on quotations on this line in the near future.

COPPERS, SOLDERING—

Base 4 to 8 lbs., 35c. per lb.; 3-lb., 38c; 2½-lb. 41c; 1½-lb. 44c; 1-lb. 48c. per lb.
F.o.b. Toronto, Hamilton.

ENAMELED WARE PRICES ADVANCED

Toronto.

The discount on enameled ware has been reduced from 33 1-3% to 30% as a result of higher prices on basic metals, and the continued firmness noted in primary sources. The advance, while not large, affects the complete range of enameled goods including baths, basins,

state that advances in price are warranted in view of the rising prices of raw materials.

RANGE BOILERS—

Size.	List Price.
5-gallon	\$13 50
12 to 15 gallon	14 00
18-gallon	15 00
26-gallon	16 50
30-gallon	17 50
35-gallon	20 50
46-gallon	22 75
52-gallon	38 00
66-gallon	60 75
82-gallon	74 00
100-gallon	103 00
120-gallon	117 00
144-gallon	164 00
168-gallon	187 00
192-gallon	210 00

Discounts, Standard weight, 40 per cent.
Extra heavy, 30 per cent.

WROUGHT PIPE PRICES REMAIN UNCHANGED

Toronto.

There has been no further change in the quotations on wrought pipe since the recent upward revision. Sales are gradually taking on larger proportions at the list following. Local dealers assert that they are looking for an active season's business in pipe.

WROUGHT PIPE

Price List No. 57.		February, 1922.			
Standard		Butt-weld Pipe S/C			
		Steel	Gen.	Wrot.	Iron
		Blk.	Galv.	Blk.	Galv.
Size					
1/4 in.		6.00	8.00	.....	.....
1/4 in.		4.14	6.12	7.38	9.42
3/8 in.		4.14	6.12	7.38	9.42
1/2 in.		5.27	6.72	7.57	9.10
3/4 in.		6.44	8.05	9.20	10.93
1 in.		9.18	11.56	13.26	15.81
1 1/4 in.		12.42	15.64	17.94	21.39
1 1/2 in.		14.85	18.70	21.45	25.58
2 in.		19.98	25.16	28.86	34.41
2 1/2 in.		31.59	39.78	.....	.....
3 in.		41.31	52.02	.....	.....
3 1/2 in.		53.36	66.24	.....	.....
4 in.		63.22	78.48	.....	.....
Standard		Lap-weld Pipe S/C			
		Per 100 feet.			
		Steel	Gen.	Wrot.	Iron
		Blk.	Galv.	Blk.	Galv.
Size					
2 in.		23.31	28.49	32.19	37.74
2 1/2 in.		34.52	42.71	48.56	57.33
3 in.		45.14	55.85	63.50	74.97
3 1/2 in.		54.28	67.16	76.36	90.16
4 in.		64.31	79.57	90.47	106.82
4 1/2 in.		74.93	92.71	110.00	1.30
5 in.		87.32	108.04	1.29	1.51
6 in.		1.13	1.40	1.67	1.96
7 in.		1.48	1.83	2.14	2.55
8 in.		1.55	1.93	2.25	2.68
9 in.		1.79	2.22	2.59	3.08
10 in.		2.02	2.50	2.91	3.46
10 1/2 in.		2.60	3.21	3.75	4.45

LARGER BUSINESS IN SOIL PIPE

Toronto.

Soil pipe and fittings are becoming active in local trade circles. There is no change in price since the recent adjustment. Discounts in effect follow:

SOIL PIPE—

2 inch	Less 33	1-3%
3 inch	Less 33	1-3%
4 inch	Less 33	1-3%
5 and 6 inch	Less 33	1-3%
8 inch .....	.....	net
FITTINGS—		
8 inch fittings.....	.....	net.
2 to 6 inch	Less 45	per cent.

CLOSET COMBINATIONS AND BOWLS REMAIN UNCHANGED

Toronto.

No changes are reported in the prices governing closet combinations, bowls, tanks and seats. Local trade in these lines is said to be moderately good and in excess of last season. The recent re-

duction in price in closet combinations and tanks has been adopted in outside markets corresponding with the recently revised list given below.

CLOSET COMBINATIONS—

	Each
Oak, Wood Tank, Oak W. S. Seat and Cover	24 00
Oak Vitro Tank, Oak W.S. Seat and Cover	24 75
Oak Pussyfoot Tank, Oak W.S. Seat and Cover	24 00
Oak Wood Tank, Oak P.H., Seat and Cover	24 50
Oak Vitro Tank, Oak P.H. Seat and Cover	24 50
White Vitro Oak Woodstrip Seat and Cover	24 50
White, Pussyfoot Oak Woodstrip, Seat and Cover	25 50
White Pussyfoot, Woodstrip Seat and Cover	25 50
White Vitro Tank, Mahog., P.H. Seat and Cover	26 50
White Pussyfoot, Mahog., P.H. Seat and Cover	26 50
White Vitro or Pussyfoot, oak, P.H. Seat and Cover	26 00
Mahog. Pussyfoot, Mahogany P.H., Seat and Cover	27 00
Vitreous China Tank, Oak P.H., Seat and Cover	27 00
Enam. Iron Tank, Oak P.H. Seat and Cover	28 75
Vitreous China Tank, Mahog., P.H. Seat and Cover	29 00
Enam. Iron Tank, Mahog., P.H., Seat and Cover	28 75

ADDITIONS OR REDUCTIONS ON ABOVE—

If supplied less bend or offset, deduct..	0 50
If supplied with reverse trap bowl, add	1 50
If supplied with BOT Reverse Trap bowl Add.	2 25
If supplied with plain syphon jet bowl Add.	7 00
If supplied with N.P. stock cock on supply Pipe, Add	1 50
If supplied less brass and rubber floor flange and bolts, Deduct	0 60
If supplied less bend or offset, deduct..	0 50
If supplied less N. P. supply pipe deduct	0 70

CLOSET BOWLS—

Washdown bowl with spud	10 60
Reverse trap bowl, with spud.....	12 10
Syphon jet bowl, with spud	17 00
"Richelieu" bowl	10 50

CLOSET TANKS—LOW DOWN—

Oak wood, Tank and inside fittings with bend and supply	13 20
Mahog. Wood Tank, and inside Fittings with bend and supply	15 40
Oak Vitro or Pussyfoot Tank and inside Fittings with bend and supply	13 45
White Vitro or Pussyfoot Tank and Inside Fittings with bend and supply	13 40
White Enam. Tank P-535 or P.9262, or White Vitreous China Belmeade Tank with fittings (as above)	18 00

CLOSET SEATS—

Oak Rich. Seat and Cover to wall.....	3 50
Oak Woodstrip Seat and Cover with bolts	3 50
Oak Woodstrip Seat less Cover with bolts	2 90
Oak Post Hinge Seat and Cover.....	3 85
Mahog. Fin. Post Hinge Seat and Cover.....	4 75

BOILERS AND RADIATORS SHOW NO CHANGE

Toronto.

Following the recent advance on boilers and radiators, no price developments have occurred in this line. Trade is said to be satisfactory for this season and spring requirements are expected to reach large proportions.

RADIATORS—

Revised radiator list prices are for 1, 2, 3, 4 and 5-column radiators per square foot.
38 in., \$1; 32 in., \$1.10; 30 in., \$1.15; 26 in., \$1.20; 23 in., \$1.26; 22 in., \$1.30; 20 in., \$1.36; 18 in., \$1.40; 16 in., \$1.50; 14 in., \$1.55; 13 in., \$1.60.
Discount on 2, 3, 4 and 5 column standard sizes, 51 per cent. for water and 52 per cent. for steam.

Discount on 1-column standard size, and 2, 3, and 4-column hospital sizes 43 per cent. for water and 44 per cent. for steam.

Discounts on 1-column hospital size, water 29 per cent; steam, 30 per cent.

Wall radiators—5 ft., \$1.15; 6 ft., \$1.10; 7 ft., \$1.05; 9 ft., \$1.05; 12 ft., \$1.05. Discount 43 per cent.

BOILERS—

Water:

Round 60 per cent. off list. Square 20 per cent. off list.

Steam:

Round, 25 per cent. off list; Square, 15 per cent. off list.

BOILER TUBE PRICES REMAIN STATIONARY

Toronto.

No change is made in quotations on boiler tubes. Present prices are being well maintained, moderate business being reported in most quarters.

BOILER TUBES—

Size	Seamless.	Lap-weld
3/4 inch	\$19 00	\$.....
1 inch	20 00	.....
1 1/4 inch	22 00	.....
1 1/2 inch	24 00	.....
1 3/4 inch	24 00	23 00
2 inch	22 00	19 00
2 1/4 inch	24 00	21 50
2 1/2 inch	27 00	23 50
3 inch	34 00	28 50
3 1/4 inch	36 00	33 00
3 1/2 inch	38 00	33 00
4 inch	50 00	42 00

CANADA PLATES ON A FIRM PRICE BASIS

Toronto.

Canada plates, Welsh, tin and terne plates remain stationary in price. There is no heavy movement reported in these lines and although reports from basic sources emphasize the steadily increasing firmness in tin and Canada plates, no adjustments have been made in local quotations.

PLATES, CANADA—	Per box
Ordinary, 52 sheets	4 90
Dull, 60 sheets	5 00
Blued and oiled, boxes 52's	5 50
Do., boxes, 60's	5 60

WELSH CANADA PLATES—

Cold polished, 18 x 24, 60's	6 25
Cold polished, 18 x 24, 60's.....	6 50

PLATES, COKE TIN—

IC, 20 x 28, 112 sheets	12 75
IX, 20 x 28, 112 sheets	15 00
IX, 20 x 28, 56 sheets	8 50

PLATES, CHARCOAL TIN—

IX, 20 x 28, 112 sheets	10 00
IXX, 20 x 28, 56 sheets	12 00

PLATES, TERNE—

IC, 14 x 20, 112 sheets	12 00
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CLAYTON AND LAMBERT TORCHES ADVANCE

Toronto.

Recently noted climbing tendencies in brass and copper primary markets are being reflected in some lines of finished products. Torches are among the earlier lines affected and an advance of 10 per cent. is now quoted. Below is the revised list:

CLAYTON AND LAMBERT TORCHES—

No. 32, each.....	10 35
No. 208, each	11 00
No. 122, each	7 75
No. 38, each	9 25

SPRING PRICES ON SAP BUCKETS ANNOUNCED

Toronto.

New spring quotations on sap buckets are announced. Early quotations were for the most part lower than those now in effect and substantial bookings were reported at the lower price. New business, however, will be at the revised list which is given below:

SAP BUCKETS—

	Per 100
No. 7 straight	16 30
No. 8	17 50
No. 9	19 60
No. 12	21 00
No. 16	25 20
No. 6, Western	15 75
No. 10	21 00
No. 8, galvanized straight	23 00
No. 12	27 00
No. 16	31 00
No. 10, Western, galvanized	27 00

COMPRESSION GOODS PRICES HAVE REMAINED UN- CHANGED

Toronto.

No change is recorded in the price of compression goods. This line has shown a gradual improvement in turnover, sales are reported moderate to good for this season. Discounts shown are in effect locally.

COMPRESSION GOODS—

Compression work, standard	45%
Fuller work, standard	30%
Quick opening compression bibbs	43%
Bath cocks, compression	41%
Jenkins iron body, gate	25%
Bath cocks, quick opening	41%
Basin cocks, quick opening	46%
Flatway stop and waste cocks, standard	56%
Roundway stop and waste cocks, standard	56%
Brass steam cocks, standard	50%
Radiator valves, standard	55/25%
Do., removable discs	55/25%
Globe, angle and check valves, standard	25%
Gate or straightway	25%
Emco Globe valves	33%
Emco check valves	33%
Jenkins gate or straightway	16%
Jenkins iron body, globe and angle	15%
Jenkins Globe, angle, check and swing check	10%
Jenkins iron body, gate	25%

NO CHANGE IN FITTINGS PRICES

Toronto.

The price of fittings is stationary at the old list. There is no special activity noted in this line, but good business is looked for as the season advances.

FITTINGS—	Mont.	Tor
	%	%
Cast iron fittings	27	22
Malleable bushings	30	25
Cast bushings	30	25
Unions	45	40
Flanged unions	27	22
Plugs, cast iron	27	22
Couplings, 4 in. and under	25	25
Do., 4½ in. and larger	5	5

MALLEABLE FITTINGS—

New piece list adopted June 1, 1922. Discount, 68 per cent.

EAVESTROUGH AND CONDUCTOR PIPE FIRM

Toronto.

Following the recent price revision noted recently, quotations on eave-trough and conductor pipe have been well maintained at the new levels. The discount of 60 per cent. which replaces the former one of 70 per cent. is in force on the local market.

TROUGH (EAVE)—

O. G. Square Bead—	Per 100 ft.	Per 100 ft.
8 inch	\$15 90	15 inch..... 34 50
10 inch	17 70	18 inch..... 44 00
12 inch	21 20	
O. G. Round and Half Round		
8 inch	16 90	15 inch..... 35 50
10 inch	18 70	18 inch..... 45 00
12 inch	22 20	
Less 60 per cent.		

PIPE (CONDUCTOR)—

Plain, round or corrugated.	Per 100 ft. in 10 ft. lengths
2 in., in 10 ft. lengths, list	18 40
3 in., in 10 ft. lengths, list	22 30
4 in., in 10 ft. lengths, list	29 60
5 in., in 10 ft. lengths, list	48 00
6 in., in 10 ft. lengths	58 80
Less 60 per cent.	
ELBOWS (CONDUCTOR)—	
2 inch, list	5 25
3 inch, list	6 00
4 inch, list	10 50
5 inch, list	24 00
6 inch, list	29 00
Less 60 per cent.	

WROUGHT NIPPLES REMAIN FIRM

Toronto.

The recently revised discounts on wrought nipples are still in effect. Further changes to higher levels have been looked for but no move in this direction has taken place to date. Below is the list of discounts governing nipples.

NIPPLES, WROUGHT—

Close and short, 4 in. and under, 50 per cent., 4½ and larger, 40 per cent; long, 4 in. and under, 55 per cent; 4½ in. and larger, 45 per cent; running thread, 4 in. and under, 30 per cent.

REVISED QUOTATIONS IN EFFECT ON WROUGHT PIPE

Winnipeg.

Quotations on wrought iron pipe have registered an advance of approximately five dollars per ton. Latest quotations are as follows:

WROUGHT PIPE—Per 100 ft.—	Black	Galv'd.
Size ½ inch	6 90	9 30
Size ¾ inch	4 90	7 25
Size 1 inch	5 00	7 40
Size 1½ inch	6 45	8 20
Size 2 inch	7 90	9 85
Size 2½ inch	11 30	14 10
Size 3 inch	15 25	19 10
Size 3½ inch	18 25	22 85
Size 4 inch	24 55	30 75
Size 4½ inch	38 80	48 65
Size 5 inch	50 75	63 60
Size 5½ inch	65 50	80 95
Size 6 inch	77 60	95 90
Size 6½ inch	91 90	113 25
Size 7 inch	107 15	132 05
Size 7½ inch	139 00	171 25
Size 8 inch	200 50	
Size 9 inch	210 60	
Size 10 inch	295 00	
Size 12 inch	273 90	
GENUINE WROUGHT IRON PIPE—		
Size 1½ inch	26 00	
Size 2 inch	31 10	
Size 2½ inch	41 85	

CORRUGATED SHEETS REMAIN ON FIRM PRICE BASIS

Winnipeg.

There is a firm tone to the galvanized sheet market and indications point to an upward direction.

FIRM TONE TO BOILER TUBES

Winnipeg.

The upward tendency which has prevailed in the boiler tube market during recent weeks is likely to result in slightly higher price levels in the near future. Prices at the present time show no change.

REVISED QUOTATIONS ON GATE VALVES

Winnipeg.

There is a revision in quotations on gate valves; half inch to two inch is quoted at list less 35 per cent. with two and one half inch to six inch at list less 30 per cent.

PRICE REVISION ON MALLEABLE RAIL FITTINGS

Winnipeg.

Revision in discounts is in effect on malleable rail fittings. The revised price is list less 40 per cent.

BRASS STEAM COCKS MOVE UPWARD

Winnipeg.

Lower discounts are in effect on brass steam cocks. Sizes one quarter inch to two and one half inch are list less 40 per cent.

JACKSON BALL COCKS SHOW AN ADVANCE

Winnipeg.

Higher quotations are in effect on Jackson ball cocks without floats and the present prices are \$1.85 each.

Winnipeg Markets

WINNIPEG, February 28.—A firm tendency in the markets for plumbing and steam fitting supplies is again evidenced by a number of price revisions in an upward direction. Wrought iron pipe has shown an advance of approximately \$5 per ton. Malleable iron fittings show a revision in price. New discounts are in effect on wrought nipples. The strong tendency in primary markets is reflected in a firm local market on corrugated sheets, boiler tubes and soil pipe. Business is reported satisfactory for this time of the year and with the approach of Spring and renewed building activities an improvement is looked forward to.

REVISION IN DISCOUNTS ON MAL- LEABLE IRON FITTINGS

Winnipeg.

Revised discounts on malleable iron fittings are in effect. This revision is upward and class A is quoted at 55 per cent. with class B and C at 65 per cent.

NEW DISCOUNTS ANNOUNCED ON WROUGHT NIPPLES

Winnipeg.

New revisions upward are in effect this week on wrought iron nipples. Below is the new schedule of discounts:

NIPPLES—
Close and short 4 in. and under 45 per cent.; 4½ in. and larger 35 per cent; Long 4 in. and smaller, 50 per cent; 4½ inch and larger, 40 per cent.

PRIMARY LEAD MARKETS SHOW FIRMNESS

Winnipeg.

There is a steady tone to lead and zinc goods at primary points and it is expected that this strength will be reflected on the local market very shortly.

SOIL PIPE SHOWS NO CHANGE

Winnipeg.

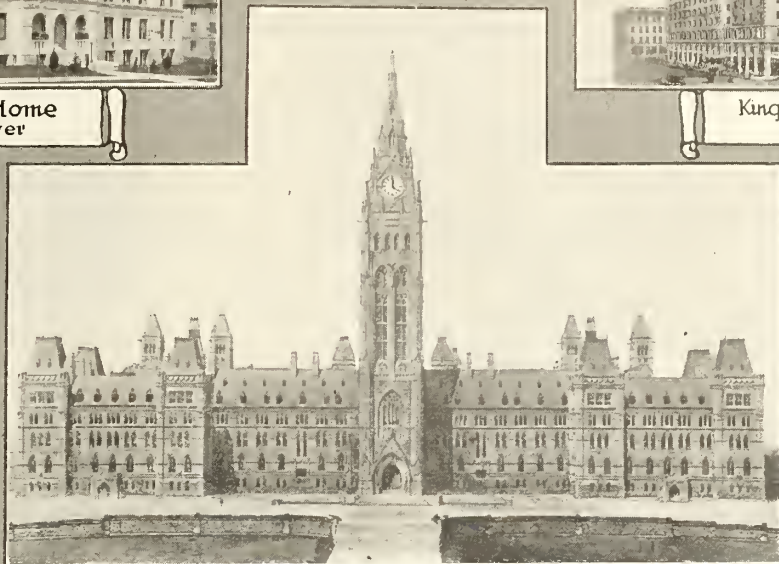
There is no change in quotations on soil pipe but owing to productive cost the market is showing a strong undertone. The movement at present is quiet but with the approach of spring and building activities an improvement is expected.



Nurses' Home
Vancouver



King Edward Hotel
Toronto



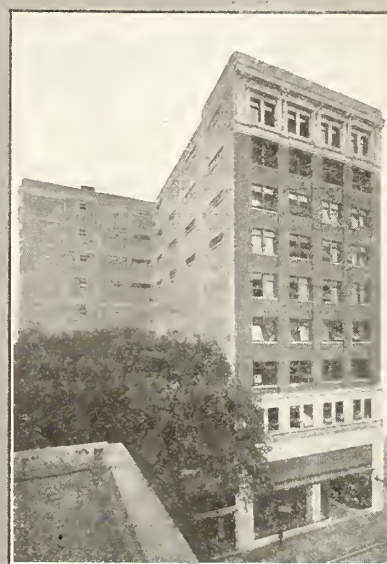
Dominion Parliament
Buildings Ottawa



The Drummond Building
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of the
LEGISLATIVE
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HOTEL &
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LIMITED
SARNIA - ONT.



Wilder Building
Montreal



Willard's Building
Toronto



Ford Motor Co.
Ford, Ontario

CORBIN DOOR CHECKS AT HIGHER PRICES

Winnipeg.

There has been a slight advance in Columbian bronzed, dead black, antique copper and antique brass Corbin door checks. Screen door checks and brackets as well as coil springs have moved upward. The following lines are quoted as follows:

SCREEN DOOR CHECKS—

No. 01 each 3 75
 Brackets—Each—
 No. 26, size 1, \$1.10; No. 26, size 2, \$1.40; No. 26, size 3, \$1.60; No. 26, size 4, \$2.00; No. 26, size 5, \$2.45; No. 26, size 6, \$2.60.
 No. 28, size 1, 95c; No. 28, size 2, \$1.10; No. 28, size 3, \$1.40; No. 28, size 4, \$1.60; No. 28, size 5, \$1.95; No. 28, size 6, \$2.00.
 No. 25, size 1, 75c; No. 25, size 2, 85c; No. 25, size 3, 95c; No. 25, size 4, \$1.20; No. 25, size 5, \$1.60; No. 25, size 6, \$1.75.

CORBIN DOOR CHECKS

Columbian bronzed, each—
 No. 1 \$6.95; 2 \$9.10; 3 \$10.65; 4 \$12.80; 5 \$17.00; 6 \$21.35.

Dead Black, each—
 No. 1 \$6.95; 2 \$9.10; 3 \$10.65; 4 \$12.80; 5 \$17.00; 6 \$21.35.

Antique Copper, each—
 No. T. R. 1 \$12.25; 2 \$14.40; 3 \$16.00; 4 \$18.15; 5 \$22.40; 6 \$26.65.

Antique Brass, each—
 No. T. E. A. 1 \$12.25; 2 \$14.40; 3 \$16.00; 4 \$18.15; 5 \$22.40; 6 \$26.65.

COIL SPRINGS—

No. 139—53—15 list price plus 33-1/3%.

CLOSET COMBINATIONS AT REDUCED PRICES

Winnipeg.

A reduction has been recorded on some lines of low-down closet combinations. One line with a syphon wash-down bowl is quoted at \$32.65 and one with a syphon jet-bowl at \$37.00.

HIGHER PRICES ON PORCELAIN ENAMELED LAVATORIES

Toronto.

A slight advance has been recorded on porcelain enameled lavatories with slab, rear outlet, oval bowl and apron in one-piece, supported on porcelain pedestal. Quotations on sizes 20 x 24 is \$33.00 and 22 x 27, \$39.40.

STEEL BATHS AT LOWER QUOTATIONS

Winnipeg.

A slight reduction has been recorded on some sizes of steel baths, five-foot steel baths are quoted at \$13.00 and five-and one half foot at \$14.50.

HIGHER PRICES ON CORBIN TRAN-SOM LIFTERS

Winnipeg.

An advance of five to forty-five cents each has been recorded on Corbin transom lifters and the following prices are now in effect:

CORBIN TRAN-SOM LIFTERS—

No. 83 length 3 ft. each 0 48
 No. 83 length 4 ft. each 0 48
 No. 84 length 4 ft. each 0 72
 No. 84 length 5 ft. each 0 85
 No. 85 length 6 ft. each 1 20
 No. R. O. 83 lengths 3 ft. each 0 70
 No. R. O. 83 length 4 ft. each 0 70
 No. K. A. 83 length 3 ft. each 0 70
 No. K. A. 83 length 4 ft. each 0 70
 No. R. O. 84 length 4 ft. each 0 95
 No. R. O. 84 length 5 ft. each 1 10
 No. K. A. 84 length 4 ft. each 0 95
 No. K. A. 84 length 5 ft. each 1 10
 No. R. O. and K. A. 85 length 6 ft. each 1 45

HIGHER PRICES ON CLOSET BOWLS

Winnipeg.

A slight advance has been recorded on china water closet bowls, one line fitted with spud is quoted at \$10.60 and the same with rear vent at \$10.90.

HIGH TANK CLOSET COMBINATIONS MOVE UPWARDS

Winnipeg.

There has been an advance in high tank closet combinations. One line of golden oak finish with varnished high tank, copper lining and nickel-plated brackets is now quoted at \$38.00.

HIGHER PRICES ON CLOSET SEATS

Winnipeg.

Higher prices are in effect on some lines of closet seats. Golden oak and birch mahogany are quoted at \$4.50 each and ivory white at \$7.00.

CLOSET TANKS AT HIGHER PRICES

Winnipeg.

Higher prices are quoted on closet tanks, one line complete with inside fittings, elbow and supply pipe is quoted at \$16.00, another at \$18.50 and one complete with supply pipe, elbow and coupling nut at \$17.25.

Are Opposed to Commercial Agreements Act Now Before the Ontario House

TORONTO, Ont.—An Act cited as Commercial Agreements Act has been given its first reading in the Ontario Legislature. This Act provides that an action may be brought by the Attorney-General of Ontario in the Supreme Court for a declaration that an agreement exists which:—

(a)—constitutes a conspiracy in restraint of trade as being an agreement between two or more persons to do or procure to be done an unlawful act in restraint of trade, (b)—is an agreement to unduly limit for transporting, producing, manufacturing, supplying, storing or dealing in any article or commodity which may be a subject of trade or commerce, (c)—is an agreement to restrain or injure trade or commerce in relation to any such article or commodity, (d)—is an agreement to unduly limit or restrain the manufacture or production of any such article or commodity or to unreasonably enhance the price thereof, (e)—is an agreement to unduly prevent or lessen competition in the production, manufacture, purchase, barter, sale, transportation or supply of any article or commodity, and that such agreement is unlawful and void, and for an injunction, mandatory order or other relief.

If the Court finds that such agreement comes within any of the clauses from (a) to (e) of the above section, it shall declare such agreement unlawful and void to all intents and purposes, and the Court may make such order with respect to past and future dealings, rights or obligations of the parties to such agreement as may be deemed just and expedient, having in view the course of business between the parties, the degree of good faith manifested by them in entering into acting under, or carrying out such agreement, and the protection of the public interest, and may make such further order as circumstances require to prevent the carrying out of such agreement or any similar agreement.

The Bill has only been introduced. It is designed to take the place of the Anti-Combines Bill which was introduced just at the close of the 1922 session, and against which there was so much opposition. The Commercial Agreement Act

as here outlined is not generally approved of, however. The feeling of manufacturers in regard to this Bill is certainly opposed to it; the Canadian Wholesale Grocers' Association when given an opportunity to express their position in regard to the above, last December, declared against it. It was stated by officers of the association at that time that such a Bill constituted the Attorney-General's department a detective bureau, giving its officials the right to investigate any firm's affairs where, in the Attorney-General's opinion, an agreement contrary to this Act exists.

HOUSEHOLDERS FIRST ON LIST FOR GAS

(Continued from page 15)

be supplied shall include only such appliances as are constructed and equipped for heating purposes; ordinary steam power boilers used for steam heating shall not be supplied with gas."

Provisions under which a special permit for the use of natural gas may be issued are made in the regulations.

The use of devices to pump an extra supply from the mains is prohibited.

"Any person who makes use of any device attached to any service pipe for the purpose of withdrawing gas from any main in a larger quantity or under greater pressure than the ordinary flow of gas from the main, unless under special permission from the commissioner, shall immediately be cut off from any further supply.

"Gas shall be supplied only in cases where suitable appliances for economical consumption are employed, and where such appliances are kept in good condition and adjustment. Service lines hereafter installed shall not be less than one inch in diameter."

Rules governing the drilling of wells are also embodied in the document. An inspection of all consumers' appliances for burning gas is also demanded:

"All distributors of natural gas shall inspect their consumers' appliances at least twice yearly, and shall either adjust or instruct and assist the consumer in adjusting all equipment to burn gas with the greatest possible economy."

JENKINS Brass Swing Check Valve



Sectional View of Fig. 475

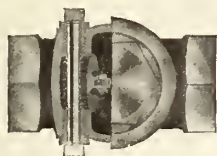
A strong, handsome and durable valve with the Jenkins Renewable Disc feature.

The angle of the seat is such that it opens readily at low pressure and the shock of closing under high pressure in the most severe service is absorbed in the line piping.

This Jenkins model is adapted for use in either horizontal or vertical position.

Fig. 475 illustrated here is the Standard pattern for 150 pounds working pressure. Made in extra heavy patterns (Fig. 260) suitable for 300 lbs. working pressure.

The complete Jenkins line is pictured and described in Catalog No. 9—free on request.



View Looking into Body of Valve

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103 ST. REMI ST. MONTREAL

Sales Offices:

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VANCOUVER

European Branch: 6 Great Queen St., Kingsway,
London, W.C. 2, Eng.

Jenkins Valves



Sell Desolvo As Well As Use It

Every time you call at a house and thaw out frozen pipes you lose money because if you charge what your time is really worth the customer thinks you are robbing him—so you charge him less—and lose money.

Sell him a can of Desolvo instead. Then tell him to keep a can on hand and to use it every month. Get a hundred customers like this buying a can every month—100 cans a month without effort and a real profit besides.

This will be easy for you because Desolvo is being advertised in the Canadian newspapers and every piece of copy emphasizes to the retailer the importance of using a can of Desolvo every month. Your jobber's salesman has Desolvo. Tell him to send you a trial order. Begin now to build up this big new business that is waiting for you.



K-K is a specially prepared chemical for cleaning solid porcelain or vitreous ware only. You can use K-K in your work as well as sell it along with Desolvo. Get a trial order from your jobber.

THE CHAMBERLAIN DESOLVO CO., Ltd.
Toronto, Canada

KEEPS DRAIN PIPES CLEAN
DESOLVO
Use A Can Every Month

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AIR LINE SYSTEMS

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J. H. Williams Co., Brooklyn, New York.

United Brassfounders & Engineers, Ltd., Manchester, Eng.

Wallaceburg Brass & Iron Mfg. Co., Ltd., Wallaceburg, Ont.

Wolverine Ltd., Toronto, Ont.

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Gendron Mfg. Co., Toronto.

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Lord & Burnham Co., Ltd., Toronto.

Spencer Heater Co., Ltd., Toronto, Ont.

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BOLTS AND NUTS

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Galt Brass Co., Limited, Galt.

Kerr Engine Co., Ltd., Walkerville.

James Morrison Brass Mfg. Co., Toronto.

H. Mueller Mfg. Co., Ltd., Sarnia, Ont.

Standard Sanitary Mfg. Co., Ltd., Toronto.

Hamilton.

United Brassfounders and Engineers, Ltd.,

Manchester, Eng.

Wallaceburg Brass & Iron Mfg. Co., Ltd., Wal-

laceburg, Ont.

Wolverine Ltd., Toronto, Ont.

W. H. Cunningham & Hill, Ltd., Toronto

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H. Mueller Mfg. Co., Ltd., Sarnia, Ont.

Standard Sanitary Mfg. Co., Ltd., Toronto, and

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Standard Sanitary Mfg., Co., Ltd., Toronto.

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chester, Eng.

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Hamilton.

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Galt Brass Co., Ltd., Galt.

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Hamilton.

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Hamilton.

W. H. Cunningham & Hill, Ltd., Toronto.

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Grant E. Cole Co., 23 River Street, Toronto.

Lord & Burnham Co., Ltd., Toronto.

Smart Turner Machine Co., Ltd., Hamilton, Ont.

Warden King, Ltd., Montreal and Toronto.

W. H. Cunningham & Hill, Ltd., Toronto.

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Fittings, Limited, Oshawa.

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For Steam and Hot Water Heating

Kerr Radiator Valves need no introduction. They have been setting a standard of quality and efficiency in connection with Hot Water and Steam heating for many years, and continue as recognized leaders in this line of valves.

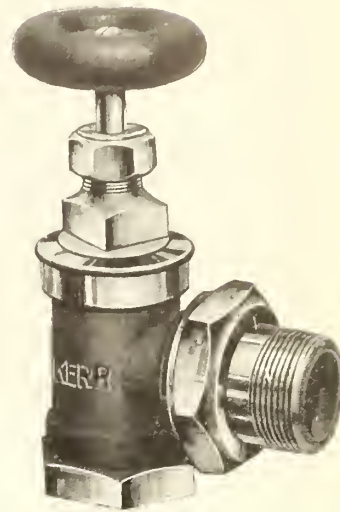
Kerr Valves on your Radiator is a stamp of quality on the job.

Ask your jobber for KERR valves. He likely has them in stock.

Kerr N. P. Union Elbows register with either the Hot Water or the Steam Valve, and are of same standard high quality.



No. 34.



No. 39.

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WALKERVILLE

Valve Manufacturers

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Empire Mfg. Co., London and Toronto.
J. E. Farrell, 210 Galley Ave., Toronto, Ont.
Kerr Engine Co., Walkerville, Ont.
Smart Turner Machine Co., Ltd., Hamilton, Ont.
United Brassfounders & Engineers, Ltd., Manchester, Eng.
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SYSTEMS—SCHOOL
Steel Trough & Machine Co., Ltd., Tweed, Ont.
TANKS—GASOLINE
Steel Trough & Machine Co., Ltd., Tweed, Ont.

TANKS, STEEL
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TANKS—STORAGE
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Standard Sanitary Mfg. Co., Ltd., Toronto, Hamilton.
J. H. Williams & Co., Brooklyn, N.Y.
W. H. Cunningham & Hill, Ltd., Toronto.
TORCHES
W. H. Cunningham & Hill, Ltd., Toronto.
UNIONS
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Empire Mfg. Co., London and Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
United Brassfounders & Engineers, Ltd., Manchester, Eng.
VAPOR HEATING SYSTEMS
C. A. Dunham Co., Ltd., Toronto.
VICES, CHAIN, CLAMP, MOUNT
J. H. Williams & Co., Brooklyn, N.Y.
VITRO TANKS
Galt Brass Co., Ltd., Galt.
VACUUM SYSTEMS OF HEATING
C. A. Dunham Co., Ltd., Toronto.
Smart Turner Machine Co., Ltd., Hamilton, Ont.
VALVES
Empire Mfg. Co., London and Toronto.
Jenkins Bros., Ltd., Montreal, Que.
The Kerr Engine Co., Walkerville, Ont.
United Brassfounders & Engineers Ltd., Manchester, Eng.
WATER SUPPLY SYSTEMS
Empire Mfg. Co., London and Toronto.
Smart Turner Machine Co., Ltd., Hamilton, Ont.
Standard Sanitary Mfg. Co., Ltd., Toronto, Hamilton.
Steel Trough & Machine Co., Ltd., Tweed, Ont.
The Westco Pumps, Limited, Toronto.
WASHERS
Canada Metal Co., Ltd., Toronto.
W. H. Cunningham & Hill, Ltd., Toronto.
WASHING MACHINES
Gurney Foundry Co., Ltd., Toronto.
WRENCHES, SET, DROP FORGED,
ENGINEERS, SOCKET AND CHAIN PIPE
J. H. Williams & Co., Brooklyn, N.Y.
WROUGHT COUPLINGS AND NIPPLES
Canada Metal Co., Ltd., Toronto.
Fittings, Ltd., Oshawa.

Are These The Opportunities You're Looking For?

Fan Heating and Ventilating Engineering is the pinnacle of all other forms of heating, and of all branches of steam fitting and sheet metal work. It prepares you for:

1. For Employers it enlarges their business opportunities 100%.
2. Employees it raises to Foremanship of a large shop.
3. Or as Designing Engineer of some large Heating Contractor.
4. As an intelligent Salesman of Heating Appliances.
5. As Chief Engineer with a Heating or Furnace Manufacturing Co.
6. Later a Consulting Engineer to Architects and Building Contractors, etc.

Which of These Are You Working for?

Full Information Free.

Select Your Course.

[] Fan Heating and Ventilating Engineering. [] Sheet Metal Design and Pattern Drafting.

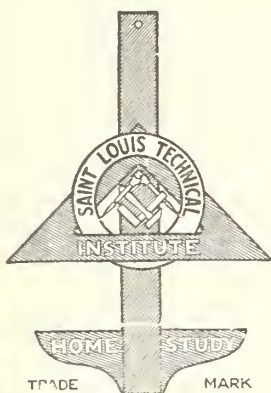
[] Business Management, for office folks.

ST. LOUIS TECHNICAL INSTITUTE

4543 Clayton Avenue

O. W. Kothe, Prin.

St. Louis, Mo.



Good papers furnish A.B.C. reports to their advertisers.
Sanitary Engineer is a member of the Audit Bureau
of Circulations.

THE Royal

Automatic Gas Water Heaters

A Better Heater at a Lower Price

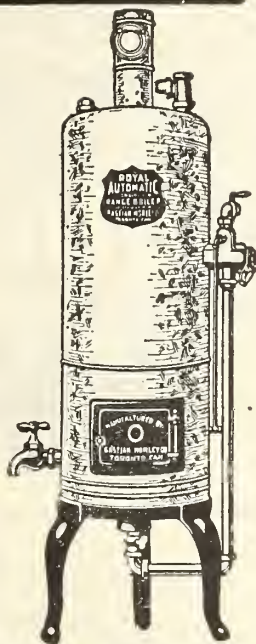
The Cost of the Royal Automatic Heater is less than half that of the coal type heater of similar service capacity.

It is easy to install, uses little gas and delivers hot water instantly at the faucet 24 hours of the day.

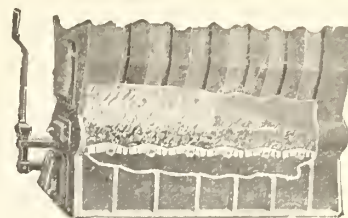
The Royal thermostat may be set to maintain any desired temperature of water from 80° to 200°.

The Royal, once installed is fool proof. Nothing can get out of order; the plumber who sells it has no expensive trips, he retains all of his original profit.

Sold only through or by plumbers. Write today for full information.



Bastian - Morley, Limited
125 Hanson St. Toronto



Ever see two boilers in one?

That's what Burnham Boilers are. Great big man's size heat givers for cold, bleak days. Or on uncertain spring days, they run at half time just as economically as when at full blast. The grates shake half at a time, so you could run half the boiler at a time.

Write us for complete information.

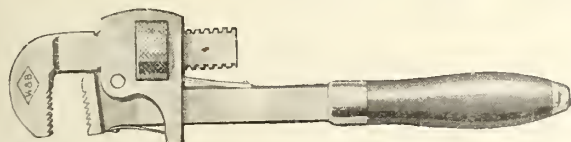
Lord & Burnham Co. Limited
of Canada

(Boiler Department)

Harbor
Commission
Bldg.,
Toronto



Factory:
St. Catharines,
Ontario



Williams' Stillson Drop-Forged Pipe Wrenches

Grip pipe and fittings positively and instantly, yet release readily. They do not slip and neither do they crush nor lock on the pipe. The Bar and Jaw, drop-forged from a specially selected grade of steel, are hardened and tempered; the Adjusting Nut is of wrought steel, case-hardened. Unconditionally guaranteed against defective workmanship and material.

Wood or Steel Handle Patterns
8 Sizes — 6 to 48 inches

Made in Canada

Ask your Dealer. Literature?

J. H. WILLIAMS & CO., Limited

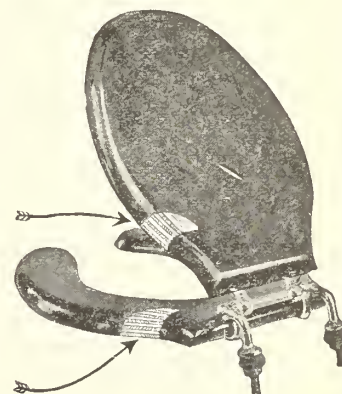
"The Wrench People"

77 Thorold Road, St. Catharines, Ontario

The Everlasting Veneer Toilet Seat

**Strong, Clean
Hygienic**

This reliable, dependable toilet seat is made of 7 and 9-ply, air-seasoned wood veneer, held together by our special wood cement. This cement is proof against heat, cold or dampness. The veneering is distributed according to the strain and wear required of the different parts. The Everlasting Seat will never crack, warp or split.



It is a splendid seat for use in cold, damp basements where closets must be installed. The Everlasting Toilet Seat will meet, and successfully resist, these severe conditions of moisture, changing temperature, etc.

**Canadian
Veneering Company,
Incorporated**

Acton Vale

Quebec



Few people realize the tremendous selling power of classified advertising or the exceptional opportunity which it offers.

Hundreds of Sanitary Engineers to-day are carrying equipment for which they have no further need, yet many others could use this same equipment to good advantage and would be glad to buy at a fair price, if they but knew of it.

How to get buyer and seller together—that's the question. The answer is—SANITARY ENGINEER classified advertising service. Thousands of Sanitary Engineers throughout the country read the classified advertisements every issue. That's why they produce results surely and quickly.

If you want to buy, sell or exchange equipment.

If you want to sell or exchange your store.

If you want to buy a store.

If you are looking for a location.

If you need a competent journeyman.

If you are seeking a position.

In fact if you wish to buy, sell or exchange anything used in a plumbing and steamfitting shop or for any reason desire to quickly get in touch with other Sanitary Engineers, use SANITARY ENGINEER'S classified advertising service. The charge is ridiculously low—\$1.50 for twenty-five words, 5 cents for each additional word.

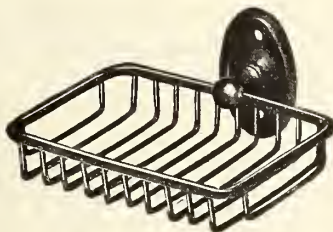
**Look For The Classified Column
on Page 46**

A Complete Line Sells Better

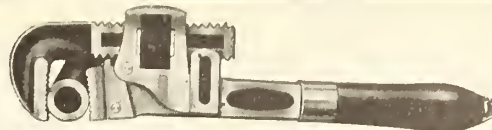
"In many lines it has been proven that the dealer who makes the best sales record is the one who has a complete line of a varied group of products under one brand name, rather than the dealer who separates his orders among several manufacturers."

—Printers' Ink.

Experience has no doubt proven to you that the leading line of bathroom fittings and hardware specialties is the Gendron line.



The Gendron Mfg. Co., Limited
Duchess St., Toronto



Made with Wood Handles, in 6 in., 8 in., 10 in., 14 in

A Trimo Wrench will pay you

When you figure on a job you naturally desire that everything will be just right so that you can go ahead with every confidence to a satisfactory completion of your undertaking.

One of the most important items to figure on is the question of a reliable wrench. The "Trimo" will fill your every need.

The "Trimo" is the wrench with the Steel Frames and Nut Guards.

Made with Wood Handles in 6", 8", 10", 14" sizes.

Made with Steel Handles in all sizes.

MADE BY THE
Trimont Manufacturing Company
55-71 Amory Street
Roxbury (Boston), Mass., U.S.A.

CANADIAN REPRESENTATIVE:
GEO. P. FRASER, 28 Temple Ave.
TORONTO.



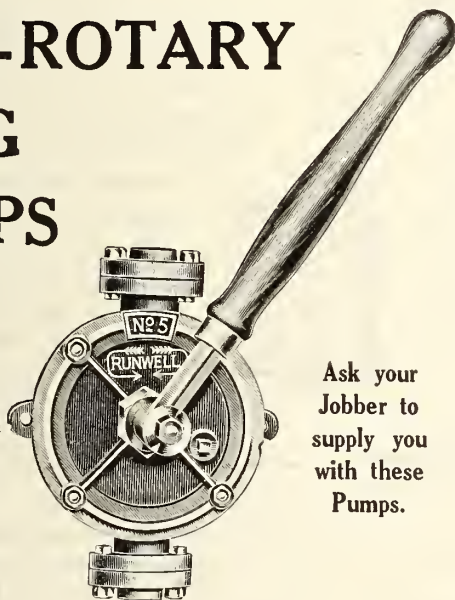
TRADE

RUNWELL

MARK

SEMI-ROTARY WING PUMPS

British
Manufacture



Ask your
Jobber to
supply you
with these
Pumps.

Representatives:

BRITISH COLUMBIA, U.S.A.—WASHINGTON, OREGON, CALIFORNIA.
FRANK RAW & CO., 198 Hastings St. W., Vancouver, B.C.
MANITOBA, SASKATCHEWAN, ALBERTA:
FREDERICK SARA & CO., Calgary.
ONTARIO, QUEBEC, MARITIME PROVINCES:
UNIVERSAL SUPPLIES, LTD., 212 Coristine Bldg., Montreal

THE TRADE

*Is Respectfully Cautioned
to specify*

RIVETED RANGE BOILERS

Made by the old reliable

**TORONTO HARDWARE
MFG. CO., LIMITED**

Wanted

Rates for Classified Advertising

Advertisements under this heading 3c per word for first insertion; 2c for each subsequent insertion.

Where answers come to Box number in our care to be forwarded, 5 cents extra per insertion must be added to cover postage, etc.

Contractions count as one word, but five figures (as \$1,000), are allowed as one word.

Rates (payable in advance). When panels are desired a charge of \$2.50 is made for a panel 1 inch deep by 2 $\frac{1}{8}$ inches wide. Minimum charge for any ad. \$1.00.

FOR SALE

ADDRESSING MACHINE FOR SALE—WE have a complete Belknap Addressing Equipment for sale. This equipment is still in use in our Subscription Department and is in excellent working order. We have placed an attractive price on this outfit, and would advise manufacturers or merchants having a mailing list to let us tell you how it will save you money. We will give a guarantee as to the proper working condition of this equipment. The MacLean Publishing Co., Ltd., 143 University Avenue, Toronto,

FOR SALE—OLD ESTABLISHED PLUMBING, heating and sheet metal business. Side line Hardware. Three hours from city of Vancouver, in one of the best centers of British Columbia. Owner having to give up on account of wife's health. This is a rare opening. \$3,000.00 cash takes it. Address Box 518 Sanitary Engineer, Toronto.

TAYLOR SAFES FOR SALE—RARE OPPORTUNITY to secure a safe at small cost. They are in splendid condition. Inside dimensions and prices are as follows: 15 in. deep, 2 ft. 6 in. wide, 3 ft. 11 $\frac{1}{2}$ in. high, fitted with built-in compartment. Price \$250.00. 18 in. deep, 2 ft. 8 in. wide, 4 ft. 5 in. high, fitted with steel compartment. Price \$200.00. Apply Box No. 701, Sanitary Engineer, Toronto.

YOU HAVE locks and bars on the doors and windows

of your store? You have provided that thieves shall not break in and steal your goods.

Have you done the same for your investments? Of course you have your bonds and stocks and insurance policies in a safety deposit box or in your office safe, but after all that is the smallest element of protection?

The really effective way to protect your investments is to buy only good investments; sound investments; investments suitable for your purposes. To do so requires a certain understanding of investments and a knowledge of week to week financial and business conditions.



When thieves break in—

Have you protected your investments as well as you have protected your store?

THE FINANCIAL POST is weekly giving 9,000 other Canadian investors and business men reliable news and well-tempered advice. It tells them about:

Business Conditions
Insurance
Bonds
Stocks
Mortgages
Political Developments
National Progress
Civic Affairs, etc.



Ask your bank manager about THE FINANCIAL POST

if you are doubtful if it would be of real value to you. He will explain how highly THE POST is regarded as an authority; how valuable its investment and business articles can be to you.

To make the most of your business and investments in 1923 you should subscribe now. Fill in the coupon; attach \$5 and we will start you off for a year.

THE FINANCIAL POST,

143 University Avenue, Toronto.

You may send me The Financial Post for one year (52 issues). I enclose \$5.00. Or you may draw on me.

NAME.....

ADDRESS.....

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Resolve Now to Use Wolverine

Quality
Supplies
and
Traps
on
Your
Contract
Work
for
1923

Always
Guaranteed

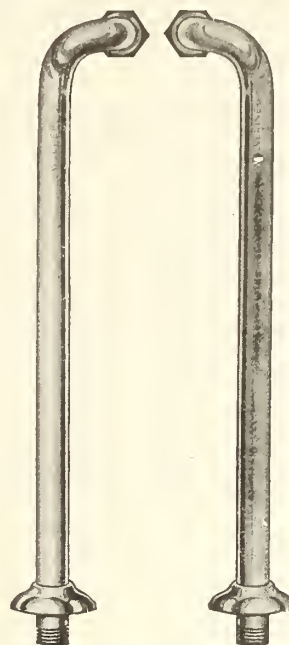


Fig. 523



Fig. 458



Fig. 685 R

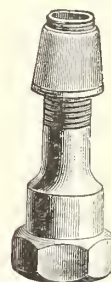


Fig. 683 R

WOLVERINE

LIMITED

76 Nelson St. Toronto-

Wolverine Bath
Room Finishing

Materials
and

Specialties

Are the Best



Fig. 34 X

BEAVER BRAND Porcelain Enamel Ware

—Your Guarantee of Quality—

Beaver Brand Enamelware by its ability to meet the highest demands for service under all conditions, has established itself in the confidence of the public to such an extent that each month witnesses an ever-increasing demand for products of Beaver manufacture.

Amherst Foundry Co., Limited

General Offices and Factory : Amherst, N.S.

Agents :

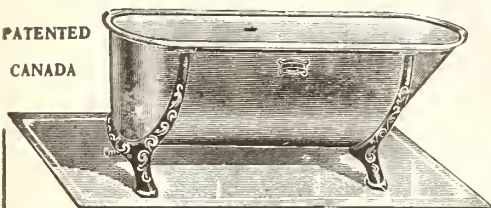
Ontario :

Monarch Brass Mfg. Co.
71 Brown St., Toronto

Manitoba and Northwest :

E. B. Plewes
197 Princess St., Winnipeg

PATENTED
CANADA



Better
Selling
Value
Than Ever

We have equipped our Steel Baths with Pressed Steel Removable Legs and 3 inch Roll Rim around the top, for which we have secured a Canadian Patent. This Roll Rim adds greatly to the selling value of

TWEED ENAMELLED STEEL BATHS

They now look like the expensive cast enamel baths but are the same price as before. Our new patent Roll Rim Enamelled Steel Baths are now ready for shipment—Order samples.

The Steel Trough & Machine Co. Ltd. Tweed, Ont.

Toronto Office—220 King St. W. A. R. Wooldridge, Representative.

Montreal Office—10 Victoria St. G. M. Price, Representative.

Plumbers and Steamfitters—

There is only one kind of satisfactory tool and that is one that is in perfect working order. Inefficient tools are a direct liability to you.

Gather up your broken tools to-day, send them to us and we will quickly put them in shape for you.

CANADIAN SERVICE STATION
FOR BEAVER TOOLS

The Pipe Tool and Repair Co.

Adelaide St. W.

Toronto, Ont.

Repairmen to the Canadian Plumber and Steamfitter.



Tapped Closet Bend

Easier to attach
More permanent
Cost less



WROUGHT PIPE



Suitable for the approaching period of building activity, road construction, etc. This is a line of great importance in making successful, profitable contracts. Our C. T. Brand of Wrought Pipe has been

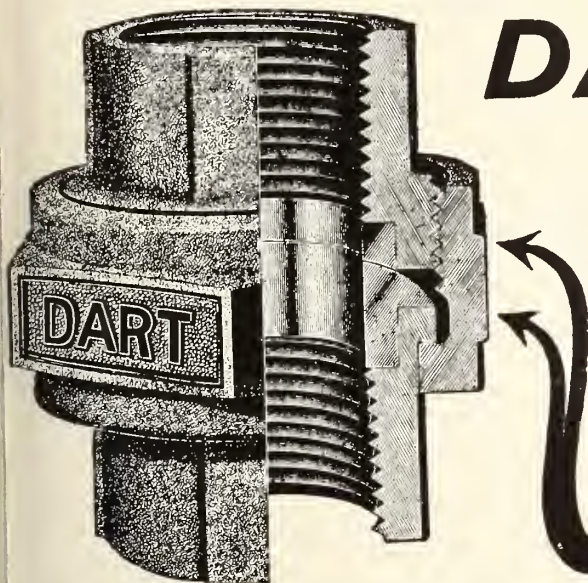
THOROUGHLY INSPECTED by practical, experienced men. It is tested to 600 lbs. hydraulic pressure, and branded with our trade-mark. We carry this line of reliable pipe in sizes 1/2-in. to 4-in. Black or Galvanized. We also manufacture nipples and couplings, black and galvanized, in all sizes.

Ask your Jobber for C. T. Brand Wrought Pipe
Canadian Tube and Steel Products Co., Ltd.
Operating Canadian Tube and Iron Co., Limited
Works at Lachine Canal, Montreal

BRONZE TO BRONZE

One of The Many Features That Go To
Make For Lasting and Dependable Service

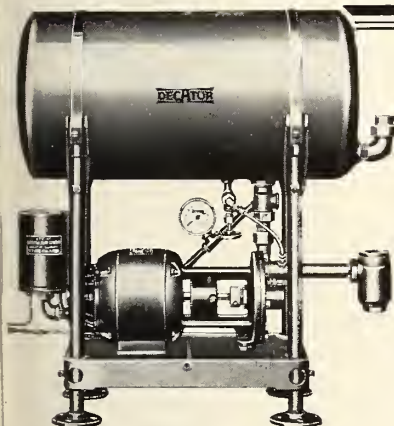
DART UNIONS



Make a joint that is proof against deterioration. A joint that will never loosen up and leak. Their permanent efficiency is due to the non-corrosive Bronze Face and Seat and the Heavy Malleable Iron Pipe Ends and Nut which will not stretch or pull apart under heavy pressure or strain. They ensure a Leak-Proof Service which leaves no loopholes for complaints.

Your Jobber Sells Them

Dart Union Co., Limited, Toronto



Series 300

A Promise Backed with Performance and Our Guarantee Back of it ALL

When we tell you that the Decatur Complete Water System will give longer and better service than any other system made, it is no idle boast.

What the Decatur has done: A Figure 300 System has run for a whole year—24 hours a day without a stop, pumping on 22-ft. suction lift against an 80 ft. head. During this time it has pumped 1,675,560 gallons of water. After all of this hard service it shows no decrease in volume, pressure or efficiency. It is still running day and night. No repairs or attention of any kind other than regular oiling has been given the outfit.

Our liberal guarantee makes it perfectly safe for you to get one of these outfits for demonstration and your profits on sales are particularly generous.

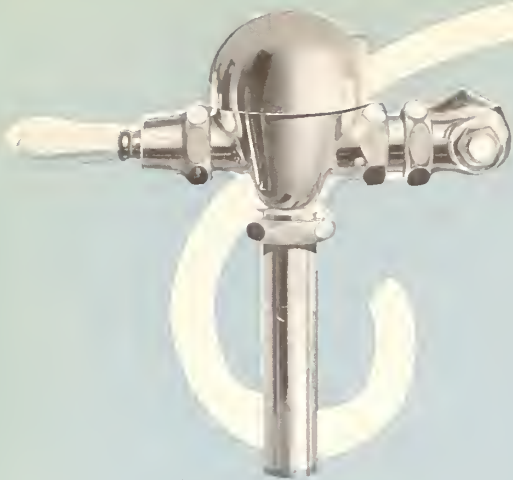
Send for catalogue and full information.

The Smart Turner Machine Co.

LIMITED

Hamilton

Canada



Something New

The Teck Flush Valve

Today we are making in our plant the New Teck Flush Valve.

Here, truly, is a flush valve that is far from the ordinary run of such equipment.

Note carefully the following points of superiority:— Simplicity in construction and positive operation. Can be connected to any type of closet bowl. Cannot be held open to waste water. Can be regulated for any length of flush without shutting off water. Will not waste water in event of dirt lodging in relief valve. Not necessary to take down the whole valve in case dirt lodges in by-pass, only remove two screws.

In every respect this valve upholds and enhances the reputation that has been always maintained by the Galt Brass Company, Limited. Use it on your next job.

Your jobber sells it.

Galt Brass Company Limited

Galt :: Ontario



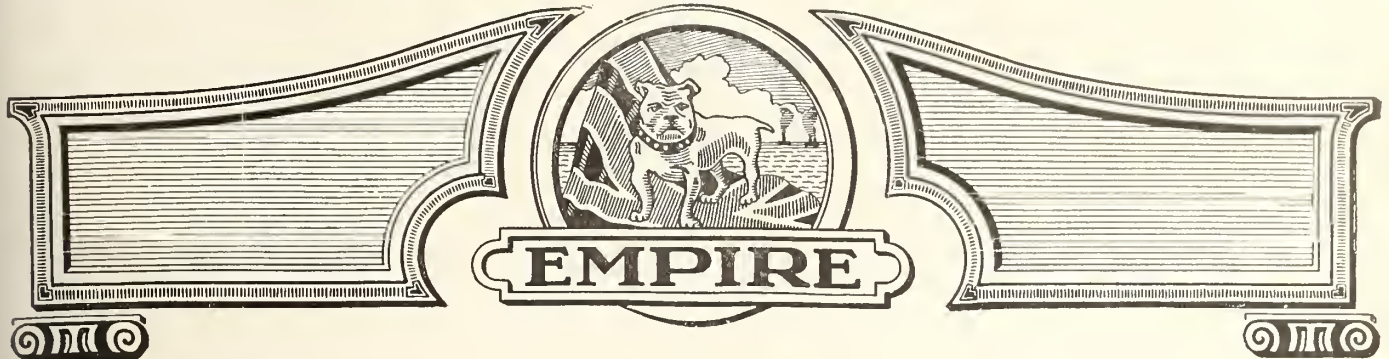
Sanitary Engineer

Plumber and Steamfitter of Canada

Vol. XVII.

PUBLICATION OFFICE, TORONTO, MARCH 15, 1923

No. 6



“Emco” Disc Valves

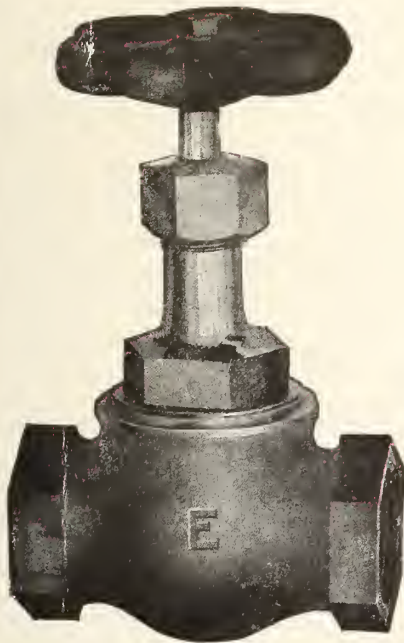
THE “Emco” standard of excellence is maintained in “Emco” Valves. In the manufacture of these valves we are mindful of the fact that convenience and fuel economy are the great essentials.

The superior construction of the “Emco” A-840 Disc Valve has firmly established itself with engineers because of the service it renders under constant pressure. This design is approved and registered by Government Inspectors for a pressure of 175 pounds.

Carried in stock by all the best jobbers.

Empire Brass Mfg. Co., Ltd.

LONDON and TORONTO, CANADA

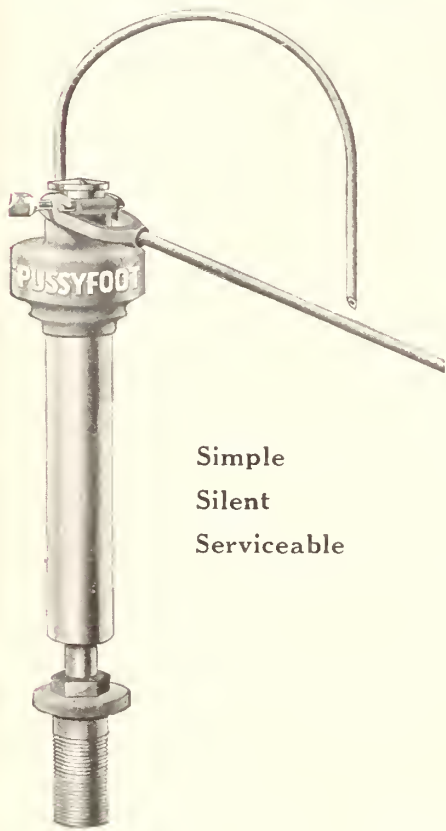


Plumbers! Pussyfoot Tanks

are exceptionally cheap for present booking.

Many Jobbers have taken advantage of the prevailing low prices, and

"Pussyfoot" Closet Tanks



Simple
Silent
Serviceable

*with
the*



Pussyfoot SIMPLEX VALVE

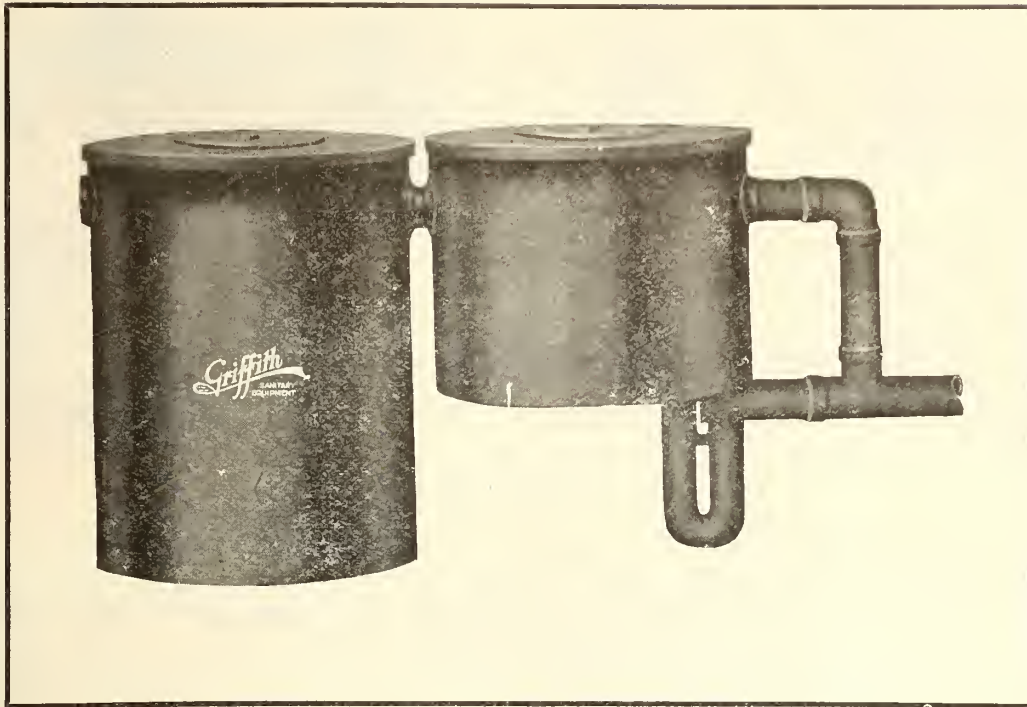
are the Best value any Plumber can buy.

DEMAND these from your Jobber and get the benefit of the highest Efficiency and greatest Value in your Tank requirements.

*Guaranteed in Every Way
Buy from Your Jobber*

THE CANADA METAL COMPANY
LIMITED

Montreal Hamilton TORONTO Winnipeg Vancouver



Installed in Half a Day Griffith's All Metal Septic Tanks

You make immediate connections to a Griffith Septic Tank—at once you have a perfect working job.

There are no delays, no coming back a second time, no further dependence on masons or bricklayers—the installation of a Griffith Tank is purely a plumber's job—you do it ALL.

Griffith's tanks are fully approved by Provincial authorities and can be had in a wide range of sizes in both Syphon and Overflow types, suitable for homes, schools and factories.

When in doubt put your installation problems up to us; we maintain a service department just to straighten out these little matters, and we will cheerfully send you a sketch making clear any doubtful points.

Write to-day for catalogue and dealer's price list.

T. G. GRIFFITH & COMPANY

Manufacturers and Sanitary Engineers

165 King St. E.

Toronto, Ontario





Merit Has No Substitute

"That used to be a good make but they have started to cheapen it now."

How many times have you heard a similar expression?

It means that another manufacturer has attempted to substitute reputation for merit—the beginning of the end for a one-time quality product.

To win a reputation for building the best automatic gas water heater is one thing—to hold that reputation is another.

During the quarter of a century which measures our business life, we have earned the enviable reputation of building only quality water heaters. To "rest on our oars" now would be breaking faith with you who have shared in our efforts and our success.

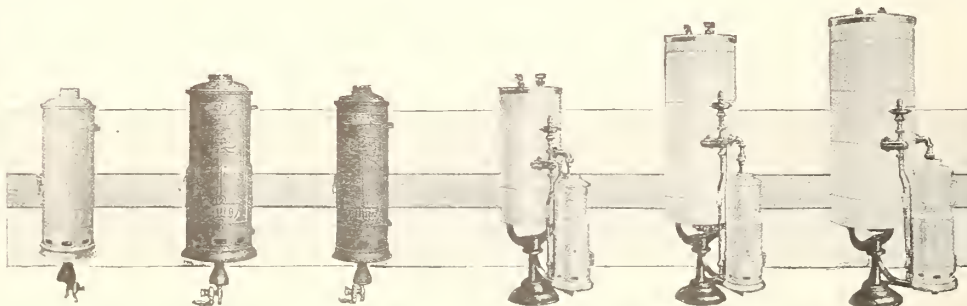
Nothing but quality endures.

We will therefore continue to build into RUUD Automatic Water Heaters only those things which make for lasting quality and service.

A new catalog on Ruud Multi-Coil
Storage Systems is now ready—
Write for your copy.

Ruud Manufacturing Company

474-476 BATHURST STREET - TORONTO, CANADA



It pays to buy advertised lines.



Anthes Soil Pipe

Costs No More Than Inferior Pipe

The Anthes Syphon is the heart of the Disposal System

A sound, scientific principle operates the Anthes Syphon.

It is fundamentally simple; no moving parts to get out of order. It will not corrode, rust nor wear out.

An Anthes Syphon once installed lasts a lifetime.

Replacements and repairs will rapidly absorb any immediate saving on tile pipe, or iron pipe of unknown quality.

Anthes Soil Pipe, while no more expensive than substitutes, lives up to its promise of thorough endurance.

The name "Anthes" branded on every length of our soil pipe is the sign of its obligation to give lasting service.

Guard your hardly won good will and protect your clients—recommend and specify Anthes *Known Quality* Soil Pipe.

Anthes Foundry Limited Toronto and Winnipeg

Manufacturers of Cast Iron Soil Pipe and Fittings





***How about that
pipe close to
the floor?***

What do you do about it?

If you have a "LITTLE GIANT" Pipe Wrench in your kit, you can tighten it up or loosen it in an instant, because the "LITTLE GIANT" has end-opening jaws that don't get in their own way when you are working in tight places.

And notice this, the "LITTLE GIANT" Pipe Wrench has only 3 parts. All drop forged and heat treated.

It's the wrench you've always needed.

Go to your regular supply house, and if they don't have it in stock write direct to us.

Made in 8, 10, 14, 18 and 24 inch sizes.

GREENFIELD TAP AND DIE CORPORATION
OF CANADA, LIMITED GALT, ONTARIO

"Little Giant"
THE PIPE WRENCH THAT FITS ALL JOBS

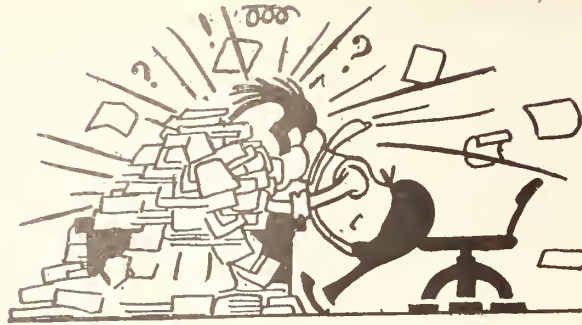
Pat. February 4, 1913

"Standard" PLUMBING FIXTURES



Posed by Miss Dorothy Knapp of New York, awarded first prize at the Physical Culture Show, Madison Square Garden for having the most beautiful figure of all contestants.

Standard Sanitary Mfg. Co. Limited
TORONTO



Where's That Price?

Loose sheets—envelope backs—note books of doubtful value
How often have you fussed and fumed looking for the elusive price to complete that estimate?

Supplant all such uncertainty and its attendant worries by calling in your Positive Price Advisor, ALLPRISER.

All day, any time, ALLPRISER is instantly available. It checks you up from every angle, instils new confidence and gives both your customer and yourself a square deal.

Write Today

K. B. Allison

4 Irwin Avenue - - - Toronto

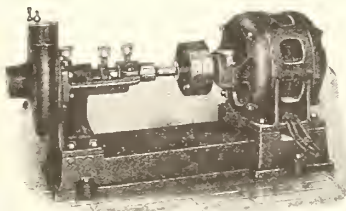


Fig. W-222

SMART-TURNER

Steam Power

AND

Centrifugal Pumps

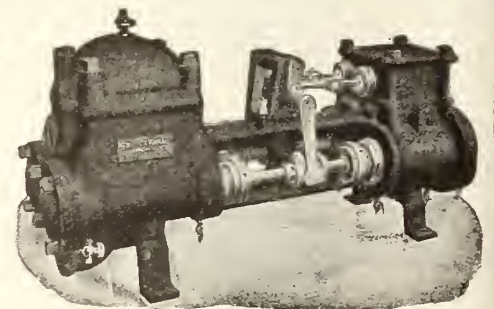


Fig. 144

Fig. W-222 illustrates one of our small direct connected, electrically driven centrifugal pumps.

Fig. 144 shows a duplex, packed piston pump, which type can be furnished in a wide range of sizes.

Fig. E-192 shows a triplex power pump, for operation either by belt, or direct connected to motor.

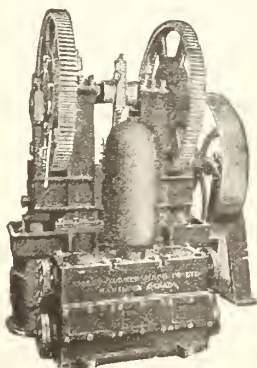


Fig. E-192

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SANITARY ENGINEER

PLUMBER AND STEAMFITTER OF CANADA

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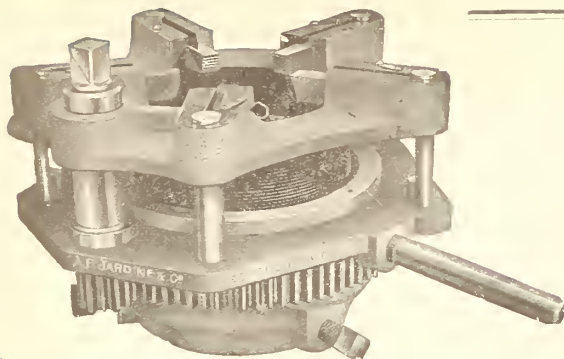
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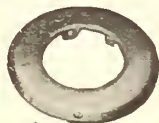
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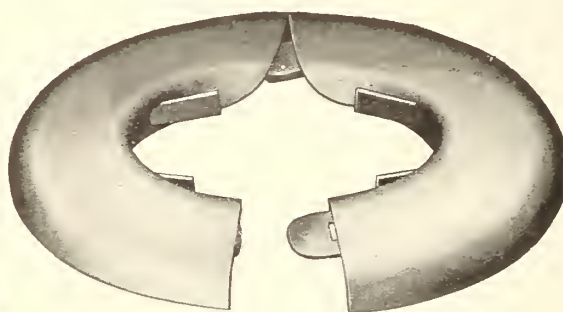
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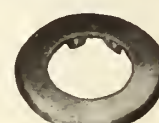
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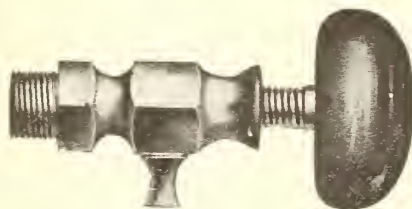
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Some Income Tax Problems Raised

Western Ontario Plumber Asks re Value of Property on Which
Depreciation is Figured and Whether Depreciation is Considered
a Liability—Are Bad Debts a Liability?

EDITOR'S NOTE:—From enquiries being made of Sanitary Engineer, a number of plumbers are having difficulty in making out their Income Tax statements which must be in by the end of April. A number of enquiries have been made during the past week which raised some interesting points which will be outlined herewith:

ONE Western Ontario plumber writes: Our statement of assets and liabilities for the last year shows the following:

Real Estate	\$ 9,730.00
Fixtures and Trucks	1,640.00
	<hr/>
	\$11,370.00
Less:	
Depreciation	
2½ per annum on buildings value ..	\$3,910
=	\$97.75
10% per annum on fixtures and trucks	
=	\$164.00
	<hr/>
	261.75
	<hr/>
	\$11,108.25

For the second year, should \$11,108.25 be considered the value on which to calculate depreciation, and should this figure be shown as the asset value in a statement of assets and liabilities at the end of the second year? Should the depreciation of \$261.75 be considered as a liability?

Answer.—The statement at the end of the first year is not correct, but should have taken the following form:

STATEMENT OF ASSETS AND LIABILITIES

As at the end of Business Year.

ASSETS—

Stock of merchandise on hand at cost price.	
Real Estate, Buildings	\$3,910.00
Real Estate, Land	5,820.00
Machinery and Tools	
Furniture and Fixtures and Trucks	1,640.00

LIABILITIES—

Accounts Payable	\$
Depreciation Reserves:—	
Buildings 2½% per annum	97.75
Fixtures and Trucks 10% per annum	164.00

We see here that the depreciation, which was charged in the profit and loss statement, is treated as a liability, and is termed "Depreciation Reserve," or sometimes "Reserve for

Depreciation." The amount is actually a setting aside of a portion of the surplus which would otherwise be available for distribution to the proprietor or proprietors. By this setting aside, the danger of distributing, as profits, the amount that should rightly be held in the business for replacement purposes is overcome.

There is a highly important side issue here. Sound business demands that a balance of cash, some easily convertible investment, should be maintained at all times equal to the amount of reserve for depreciation. A business following this policy will never find itself in the position of wanting new buildings or fixtures—to replace those which have become old-fashioned, or worn out—and having to restrain its development and expansion because no money is available.

Depreciation should always be calculated on the full asset value (less a reasonable allowance for scrap value), irrespective of any amount which has been charged against profit and loss in that, or in previous years, and set up as a reserve for depreciation. If the depreciation is calculated on the diminished value, the following results:

	Amount on which dep'n is figured	Amount charged to profit and loss
1st year	100%	10%
2nd year	100%—10%=90%	9%
3rd year	100%—20%=80%	8%

It becomes an arithmetical impossibility to ever reach a reserve which is equal to the full value of the asset.

Bad Debts

Question.—Bad debts of \$136.00 have been charged in trading accounts during the year. Should these be taken in as a liability?

Answer.—There is no liability whatever in connection with actual losses on account of bad debts. If no provision has been made regularly, it must form a direct charge against profits.

Provision is frequently made periodically, by setting aside a small percentage of gross sales, say 1% or 2%. This amount is charged against profit and loss, and credited to a "Reserve for Bad Debts" account. This reserve is always a liability. Then, when an account must be written off, the charge is made to the reserve account instead of against profit and loss. In this way, if good judgment is used in determining the amount to be set up periodically, and in extending credits, the business is preserved from large losses in any one year, and a more equitable basis for comparing the results of any one year with another, is obtained.

Shows That Plumbing Installations Pay Big Dividends

Cook & Donohue, Plumbers of Stratford, Ont., Believe in Looking After Complete Contracts for Installations of Plumbing and Heating Equipment—Satisfied Women Customers Are Big Advertisers—Recommend Only the Best in Repairs

COOK & DONOHUE of Stratford, Ontario, believe that the ideal plan for corraling the greatest volume of business which carries maximum profits is to be able to look after the complete contract, plumbing, heating and electrical work. With this end in view they have equipped their shop, show rooms and display window so that prospective customers may at all times see just how the merchandise offered will look in their own homes.

A Big Talking Point

"It is indeed a big talking point as well as a selling point when we can invite a man and his wife, who are busy with plans for a new home, or plans for improving their present home, down to our shop and let them see exactly what an installation such as they contemplate will look like. It usually means that the sale is at least half made. Sometimes, of course, they wish to select fixtures or equipment that is more expensive, or sometimes less expensive, or change an arrangement to suit their own requirements, but the fact remains that when we can show them the equipment complete and set up just as it would be in their own home, they appreciate it and our service and it only remains to arrange details."

Improving Homes

A glance at the business handled by Cook and Donohue in the past few years shows that not only city people but dwellers in the rural sections are constantly improving their homes. It is quite true that many of them make improvements over a period of months or perhaps years, putting in perhaps a bathroom first, then heating and later electrical service, but the fact that they come back to Cook and Donohue for the entire contract proves the correctness of the firm's policy. As far as builders of new homes in the city are concerned, it usually works out without question, that by taking the complete contract, Cook and Donohue are enabled to give a figure that is so attractive that they secure the entire work and make a nice profit.

While they regard good work and satisfied customers as the best advertisement any business can have, Cook and Donohue believe that their means of attracting those interested in improving their homes is by their store and window displays.

"We give careful attention to our windows and our store," said Mr. Cook to Sanitary Engineer, "and we find that it pays well. We aim to keep our store display so clean that any man can come at any time with his wife and get ideas and talk over with us proposed installations. If the men in the trade only realized it this is a most important matter. Women are not at all anxious to enter the average plumber's establishment and for good reasons. We see to it that our stock is kept clean and in perfect order and that there is no merchandise littered about for people to step over or fall over. We frequently receive compliments from women who have come down with their husbands to talk over plans with us, and in not a few instances they have sent women friends to us with resultant good business."

Please The Women

The firm believes that it is a most important matter to please the women. They have to spend most of their time in the homes and they like to have nice homes and up-to-date fixtures and equipment. In supplying these, Cook and Donohue find there is excellent business and profits and the best kind of advertising for them.

"Women are great advertisers," said Mr. Cook. "When they get a nice home with nice fixtures and equipment they never tire of telling their friends about it, and they don't forget to tell who

put them in or that the price was reasonable and the work satisfactory and so on. We ask for no better advertising than this."

The firm finds also that home owners and home builders, both men and women, frequently buy better equipment and fixtures than they had intended as a result of seeing the store displays.

Want Them Good

In this connection the firm points out that the installation to be made is one which is going to pay for itself many times over in long years of real service, and that it would be a foolish policy to put in something not in keeping with the rest of the equipment for the sake of a few dollars.

This same policy of recommending only the best is followed out in connection with repairs. If a workman is sent out to make a repair and finds that the part is worn out and that it would be bad business to repair it, he reports to the firm, with the result that the matter is taken up at once with the owner. It is pointed out that while the part can be repaired, that the job at best would only be temporary and therefore unsatisfactory, and that it would be better all round to put in a new part. Cook and Donohue find that the great majority of their customers appreciate and follow out their suggestions along these lines.

Say Business Good

The firm has been kept busy all the time and is looking for continued good business. There is a big and profitable field for them they believe in following out their policy of going after the complete plumbing, heating and electrical contracts for new homes, and homes and other places which are being improved.

Location, they believe, is an important factor in obtaining business and it pays to be where the greatest number of people can see displays which are made, and come easily to the shop. With this object in view, Cook and Donohue have their location on the main business thoroughfare of Stratford, and they aim to keep their displays and store worthy, not only of their location but of the firm's standards.

As will be seen from the illustration the firm finds it well worth while to stock electric irons, grills, fans and a large assortment of plain and fancy globes. Sales which have resulted when

GOOD BUSINESS MAXIMS OF THIS FIRM

1. Be equipped to attend to the complete contract.
2. Rural field is worthy of increasing attention.
3. Windows and showroom indicate improvement that can be made in homes.
4. Make plumber's showroom a place to attract rather than repel prospects.
5. Make strong appeal to women. They are great advertisers if satisfied.
6. Emphasize that equipment pays for itself in service spread over years.
7. Recommend only the best in both new equipment and repairs.



Laundry tubs, closet sets, sinks and other small bathroom fittings occupy the most important location in the showroom of Cook & Donohue, plumbers, of Stratford, Ont., as illustrated herewith. Groups are shown indicating the manner in which the equipment will look in the customer's home.

home owners came in to discuss heating, plumbing and electrical work have been very satisfactory.

The electrical display at night or when it is turned on in the day time is an imposing one, and has been directly responsible for the sale of much merchandise that otherwise would not have been purchased. Fancy dining room lamps and reading lamps are frequently sold for gift purposes. The firm's splendid display of bath room fixtures has also meant increased turnover in these lines. Sales are made both to those building new homes and to those who already

have bath rooms in their homes. By keeping bath room fixtures where they can be seen all the time, Cook and Donohue have developed an all year trade in them. Some people who own homes come in and buy one piece at a time until they have a complete set of fixtures.

Laundry tubs are big sellers, as every woman who knows anything about them or has seen them in a friend's home want them. With the tubs right out on display, it usually requires very little sales talk to have the man and woman who are building a new home or are making improvements, include them in the contract.

coming June, and an invitation was extended for the meeting to be held here, which was accepted, the second week in June being suggested.

Before finally fixing the date it was considered advisable to communicate with the whole Executive of the Society, comprising the presidents of the various Provincial Associations. The secretary was therefore instructed to secure their views as to the date as soon as possible. A further meeting of the sub-committee will be held next week to make definite plans for the convention.

Those at the meeting were A. Latour-elle, president of the Canadian Society of Domestic Heating and Sanitary Engineers; George Delaney, president of the Montreal Master Plumbers' Association, John Watson, P. C. Ogilvie, and D. K. Trotter, secretary.

Canadian Society Convention in June

After Missing General Convention Last Year,
Parent Society in Canada is to Meet in Montreal
This June

MONTREAL.—At a meeting of the sub-committee of the Executive of the Canadian Society of Domestic Heating and Sanitary Engineers held at the Builders' Exchange offices preliminary arrangements were made for the annual convention of the Society, which will be held in Montreal next June. Although the constitution of the Society provides for an annual con-

vention to be held in June of each year, their last meeting was held at Quebec two years ago.

Last year, owing to the illness of the president and the great amount of business going forward it was decided by the association to forego their convention. At the last meeting of the Master Plumbers' Association it was urged that the convention should be held during the

PLUMBER GOES TO BOSTON

St. John, N.B.—H. H. Rouse, formerly a plumbing contractor in St. John, N.B., is now located in Boston. Recently, a young son of Mr. Rouse was killed by an automobile in the Dorchester district of Boston, where the family is residing. Rouse was one of the first plumbing contractors in St. John to use striking advertising as a means of acquiring business.

Rural Sewage Disposal Systems for Apartment Houses and Stores

Suburban Apartment Houses and Stores Equipped With Disposal System—The Ground Slopes Towards the Building—System Has Been in Operation Several Years

Written for Sanitary Engineer by EDWIN NEWSOME, Consulting Engineer

THAT there are exceptions to every rule should ever be accepted. In all the previous articles on this subject of sewage disposal systems for rural homes, two rules have been laid down as almost hard and fast, and under conditions previously considered those rules must be carried out to the letter. I refer to the rules that the main trunk line of a sewage disposal bed should not have a greater fall than one inch in ten feet and that all the laterals be laid perfectly level. The first of these rules will from time to time be altered to make way for conditions,

though open jointed laterals **MUST** always be laid level. Not, however, always in a straight line. Sometimes rocks or tree roots would require that the laterals be run round these or other obstacles.

Then there is the question of contour of the ground, for instance, the ground to be used as a disposal area may be a hillside sloping away from the building. Some different method of laying the piping would have to be followed out.

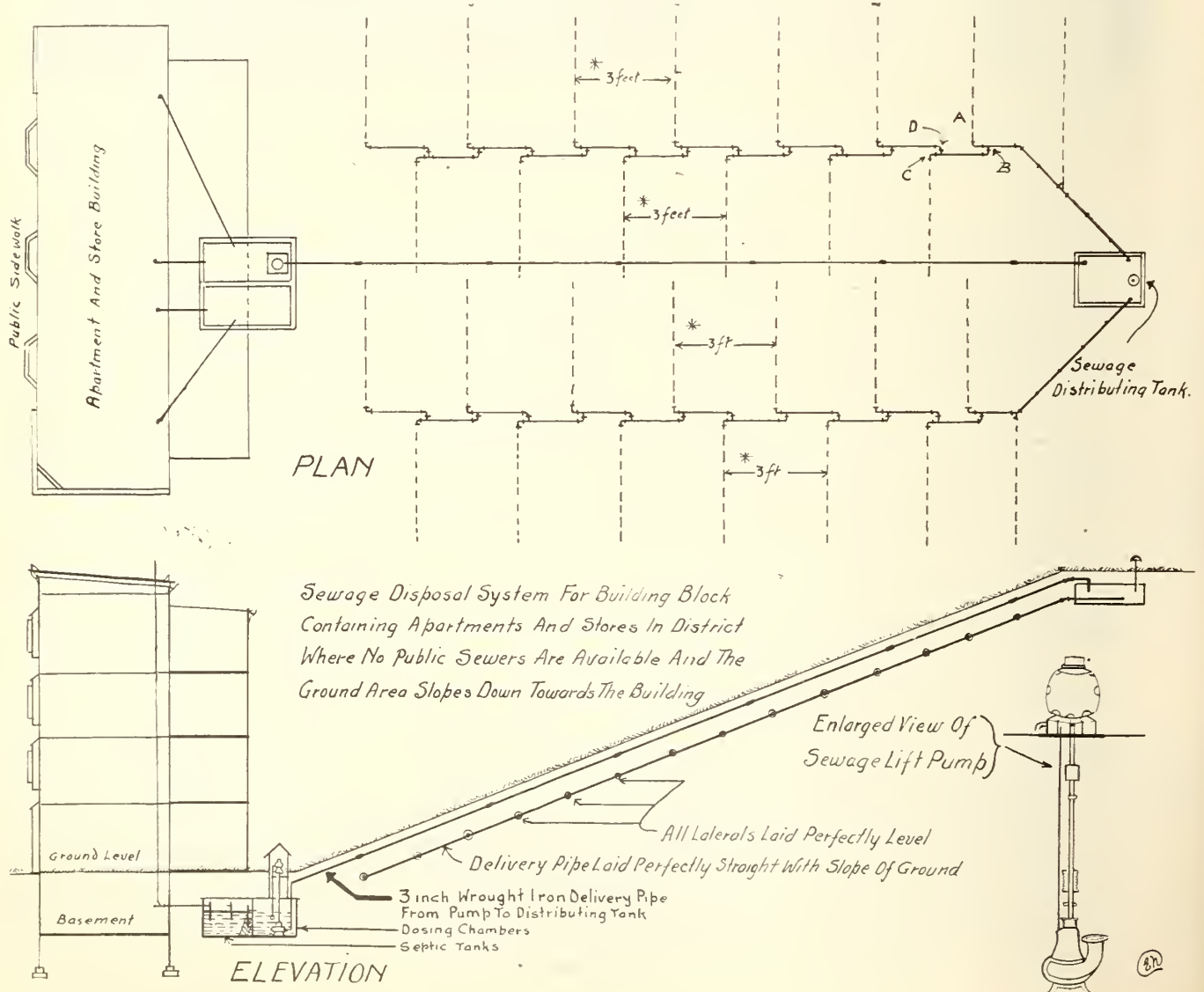
Sometimes the ground to be used slopes up from the house or building, as is shown in the accompanying plan and

elevation drawings, which, by the way, is an actual job installed over two years ago not far from Toronto. The situation found was as follows:

The land was bought, and it looked as if a large scheme of sewers and drains would be carried out. The apartments and stores were built and ready for occupancy, when the question of sewage disposal system had to be evolved, and the writer was consulted in the matter.

The ground was about as ideal as possible, good gravelly loam and lots of room. The septic tanks were constructed

** The Pipes Were 10 Feet Apart But Where Area Is Limited Pipes Must Not Be Closer Than 3 Feet*



in accordance with data already referred to in previous articles. The dosing chamber had holes cut through as also had the cultivating chambers of the two tanks, so as to make sure of the various fluids being equalized in height and bacterial conditions. The dosing chamber then had an extension built to it, to make a small pump-house to house the sewage lift pump. This job also required a large distributing tank at the top of the hill, the slope being about one foot in three, quite a slope.

The sewage lift forces the sewage through the pipe (see illustration) up into the distributing tank at the top, and main pipes laid in the manner shown. The reader should follow the line of pipe when reading this article and note how the sewage is conveyed from one side of the main pipes with the laterals alternately.

Action Described

For example, the sewage is pumped or forced up through the wrought iron pipe into the distributing tank. The sewage then flows down through the glazed tile pipe until it reaches the first clay tile bend, then it flows on into the line of laterals connected to the bend referred to.

When this line of laterals is full, the sewage backs up to the first glazed tile pipe branch and down to the second glazed tile bend, filling the laterals connected to the second bend, and again the sewage backs up as soon as the second line of laterals is full of sewage and so on until all the sewage has been pumped out of the dosing chamber into the distributing tank and out into field tile disposal bed.

Increase Allowance of 4-inch Field Tile

When such a plan of field tile piping has to be adopted, great care must be exercised in seeing that not less than 20 per cent. more open field tile laterals be furnished, because, should there be an extra number of persons come to stay in the apartments than was at first made allowance for, the situation would be serious. The lower lines of laterals would get all the surplus sewage and in all likelihood the extra amount of sewage would wash the ground up or the ground would become soggy and very unsanitary conditions set up, so it cannot be too strongly emphasized that not less than 20 per cent. more field tile be laid, and this should be added to the laterals situated nearest to the distributing chamber or tank at the top of the hill.

Keep Motor Dry and Free From Dampness

In constructing the house over the dosing chamber to house the sewage pump, there should be no gases allowed to escape into the housing. The damp air and gases are liable to damage the electric motor and if it is at all possible some means should be found to keep the little place warm and free from dampness. A small heating coil or section of a radiator would be good. Under no consideration, however, should any

method of heating be adopted that would make a flame, because many times the gases from a sewage disposal system are highly inflammable as well as explosive.

Ventilate Each Compartment

The dosing chamber and cultivating chamber must be ventilated in the same manner as is adopted in a regular septic tank and as shown in previous installations. And it will also be noted that, as there are four outlets or house drains discharging into the two cultivating chambers, they are all separate.

Upon no account should house drains be connected together so as to make fewer openings into the tank. This is a very bad mistake. Each soil pipe stack at least should run separately into the cultivating chambers, and a cast iron Y with cleanout fitted to the house drain so as to make the work of clearing any obstacle an easy matter, when it lies on its back so that a rod could be run into the Y clear of bends or other fittings, and under no consideration should offsets in such drains be made except by using the regular one-eighth or one-sixteenth bend.

Same Number of Field Tile Pipe

In this installation, as in others, the amount of field tile pipe for the work

depends upon the amount in gallons or cubic feet of sewage entering the dosing chamber and eventually to be taken care of in the field tile. As stated before, 13 lineal feet of 4-inch field tile is needed to each cubic foot of sewage, or about equal to 2 lineal feet of 4-inch field tile to each gallon with, in this case, an addition of 20 per cent. more.

The Distributing Tank Covered and Kept Warm

In a system such as described, adopting the plan shown, care should be taken that the distributing tank is kept free from frost if at all possible, as the tank, being very cold, is liable to chill the effluent and in that way may likely interfere with the proper working of the bacteria in the ground. Furthermore, some provision must be made to ensure the draining of all the effluent in the discharge pipe back into the dosing chamber. If this pipe is left full and a severe and sudden drop in temperature is experienced, the cold sewage will not permit the bacteria to work and it may be possible that this delivery pipe may, if left full of sewage, become frozen solid. The Sanitary Engineer courts all or any inquiries from our readers and would rather help out first than help clean up an unsanitary job.

(Continued in next issue)

Early Sanction of New Plumbing By-law

Master Plumbers' Association of York Township
Makes Minor Revisions in Suggested By-law Before Submission to County Council

AT THE last meeting of the Master Plumbers' Association of York Township, held at Hunt's, Yonge St., Toronto, the new plumbing by-law for the township was discussed very fully. This by-law has been endorsed in principle by the Township Council but had not been officially sanctioned at the time the meeting was held. Such sanction is expected before the next meeting, the voting on the matter being held up while some minor revisions are being made.

Future meetings of the association will be held on the second Tuesday in each month. The Educational Committee plans a discussion of bookkeeping methods and other educational matter at the next meeting.

In carrying the suggested by-law to the Town Council, W. H. Rushton, heading a deputation of the Master Plumbers' Association, made a plea for "a plumbing by-law that we can respect and understand."

"It is a big matter to go into and the plumbers should not be forced to agitate for such things as inspection because, although it looks like something for the plumbers, it is really for the benefit of the people of the township. We want a by-law with penalties that will be enforced," he said.

Reeve Jury.—"A by-law like the city by-law would answer the purpose, besides the advantage of having uniformity in the township and city by-laws."

Deputy Reeve R. H. McGregor—"If we adopted the city by-law, would it not have the effect of throwing a lot of plumbers in the township out of work who could not immediately conform with the necessary standards required?"

Deputy Reeve J. Galbraith—"If the plumbers get the by-law they want they will have a closed corporation and will be able to charge any prices that they wish."

Council will meet the plumbers later to discuss the situation.

PORT CREDIT WATER BY-LAW PASSED.

Port Credit, Ont.—After a session lasting over four hours, Council finally, wound up the town water by-law. All of the various rules and regulations governing the water supply were carefully gone over before the by-law was given its second and third readings.

With the by-law in perfect order and the rules as to rates and service agreed upon, everything is now ready for the supply to be turned on. This, however, will not be done for at least three weeks.

Problems Involved in Hydro Pneumatic Water Pumps

Average Buyer of Water Supply System Will Pay Higher Price if Good Value Can be Shown—Minimum of 10 Lbs. Pressure is Lowest for Satisfactory Use—Avoiding "Air Binding" in Pump

Written for Sanitary Engineer by M. Quinn, National Equipment Co., Toronto

THE hydro pneumatic system of water supply, which, until ten or twelve years ago, was practically unknown in Canada, though the principle had been in successful operation for many years previously in the United States, has now become part and parcel of almost every plumbing installation beyond the limits of the regular city or town water works system.

While the principle involved is an extremely simple one, there is a great variety of conditions under which the plumber is called upon to apply it, and a careful investigation has convinced us that a very large number among the trade are anxious to inform themselves fully upon the subject, and to be in a position to obtain reliable advice regarding any problem, no matter how large or how small, with which they may occasionally be confronted.

It is the object of this article, therefore, to deal to some extent with the general principles underlying this system, and to explain the various details entering into its composition, having regard to the character of service required, source or supply, motive power, etc. We believe that it would not be amiss right here, to emphasize the necessity and the wisdom, as a matter of good business, of each member of the trade giving careful thought to the duty that he owes the public in general, and his own clientele in particular, and perhaps this can be brought home more clearly by an analogy.

An Analogy

Let us assume that the reader has occasion to consult a lawyer about a matter, improper handling of which, may result in very serious consequences to him, and that the lawyer gives an opinion based entirely upon his general recollection of the law, as a result of which, the reader proceeds to court, and after being defeated at the end of very expensive proceedings, has to be satisfied with the explanation that his counsel was unaware of certain amendments that had been made, which, had he taken the trouble to read his law before he had given the off-hand opinion, would have entirely changed the attitude of his client, and saved him a lot of money.

The point we desire to make, therefore, and one which cannot be too strongly emphasized is, that the average

purchaser of a water system, or, indeed, any other class of work that the plumber does, is usually quite as ignorant regarding it as the average layman is regarding the law. He depends entirely upon the good faith of the plumber—who is supposed to have a complete knowledge of such matters and be able to advise him intelligently and honestly—regarding his requirements.

No plumber is in that position who has not carefully studied and compared the various features emphasized in connection with all of the water systems on the market.

The mere fact that he put in one system that gave reasonable satisfaction, does not at all mean that some other system might not prove to be much greater value for the money, and the fact that any part of a system works satisfactorily for a few months, is not in any sense evidence that it will not be a wreck in a comparatively short time, when perhaps any one of several other types of system could be depended upon to give service almost indefinitely.

For example, during the last few years, at least three concerns right in Canadian territory, specializing in this kind of equipment, have failed for one reason or another; some because they sought to sell to the public the lowest priced goods that could be produced, others because the design of various parts entering into their units, was faulty, and not based upon either experience or good engineering practice, but in all cases, the poor unfortunate plumber who installed the equipment, was ultimately "the goat."

Will Pay Higher Price

There is no doubt whatever, that the average consumer is willing to pay a somewhat higher price if he can be shown that he is getting full value. It is equally true that if what he buys from you "falls down," and he learns subsequently that you were in a position to furnish something better, then you will not only have a lost customer, but you will have made an enemy.

And remember this, if you install an absolutely high class outfit for your customer, show him what he has, and make him pay for it, you will have provided, at his expenses, a kind of advertising that cannot be bought with money. You cannot get a "boost" anywhere, like that from a satisfied customer.

Generally speaking, the hydro pneumatic system of water supply, may be likened to the ordinary syphon bottle in which the fluid is contained under considerable air or gas pressure, and in order that this pressure may be maintained until all the contents of the bottle are drawn off, the opening into the discharge pipe is at the very lowest point of the receptacle. Otherwise, air pressure would escape the moment the valve is opened, and the water remain. In other words, if a syphon bottle is held upside down, and the valve is opened, all the gas will rush out, leaving the water in the vessel.

It will strike the average reader as being quite unnecessary to explain so simple a fact, but the reason we do so is that we have seen from time to time a number of systems which were condemned as useless, where the whole cause of the trouble was the connection of the discharge pipe into the top of the tank, or perhaps a safety valve or other contrivance put in at that point, which allowed the compressed air to entirely escape, so that right here we desire to make our first point, viz.: Never connect anything of any kind, whether it be pressure gauge, safety valve, or any other device, into the tank anywhere above the water line, with the single exception of the top water glass mounting.

Still using the syphon bottle as an example, let us assume that a pipe connection is tapped into its side near the bottom and is extended up to a distance of several feet, and fitted at the top with a tap. It will be seen at once that if the tap is opened, the compressed air on the surface of the water in the bottle will force this water down and out through the pipe, discharging it into pail.

It will be equally clear that the greater the pressure present in the bottle, the higher may the tap and pail be placed, and as water will rise 28 inches for every pound of pressure, it will be seen that where a wash basin, for example, is located at say 14 feet above the tank, the water would continue to flow at that point until the pressure in the tank had dropped to six pounds, when it would entirely cease.

Minimum of 10 Lbs.

In practice, however, a minimum of ten pounds pressure is the very lowest
(Continued on page 18)

This is the Gas Age—Why?

History About Gas, Where Found, When and By Whom—How First Used and Supplied—The Most Wonderful Romance of the Nineteenth and Twentieth Centuries

Written specially for Sanitary Engineer by EDWIN NEWSOME, Consulting Sanitary and Heating Engineer

CHAPTER I

Let's Just Have a Personal Chat

SAY, fellow craftsmen, I often wonder how it is that we, (once plumbers and gasfitters) sanitary and heating engineers the world over, are the greatest rainbow chasers on earth. We are, that's sure. We scrap about rules and regulations, about the qualifications of a man as to his ability to install a job properly, and lose sight of the fact that labor, work done, and so on has the least value in the eyes of the general public. We have fought gas companies the world over and as a matter of fact gasfitting was first and foremost the foundation of our industry. This statement is so obvious that it cannot be refuted.

To-day, gas appliances are becoming more popular than ever, and who have we to thank? Gas manufacturers only, and if every member of our craft would consult his own heart, he would find that if the gas industry had depended upon us as a craft, there would be no gas industry, and, if such a condition did exist, the human race would be lacking one of the greatest servants known to science. The man who does not put forth every effort to create a greater demand for gas and gas appliances is, by his sins of omission, evading responsibility he little realizes.

Science, that spirit in man which is ever co-operating with the great Creator, is doing its best to tell man that some day, and not at too distant a date, that the gasification of ALL fuels will be the real beginning of the real gas age. It is coming and all the powers cannot stem the tide. The sooner every sanitary and heating engineer becomes convinced of this fact, the sooner will the public realize that our problems of cheap transportation, cost of living, and cost of heating will be solved.

And now friends, let us keep together during the period in which I will act as story-teller. Let me ask that each one of you be my silent listener for a while, and I will unfold to you some wonderful things about gas, gas appliances, how they should be sold and used. There so don't miss one, and I am sure you will enjoy every one will be about twelve if not more articles in this series, of them. Now, let's get on with the first chat.

IN THE first place, I want it to be strictly understood by every reader of these chapters that I am a firm believer in the use of gas for fuel. I don't care the snap of my finger for useless, self-interested criticism. My whole object in writing these articles is, that you, my fellow craftsman, be told just all the why's and wherefore's of gas, as a heating element. I know I will be severely criticised, but what of it? I know well that manufacturers of coal fired apparatus will assume that I am wrong, but they are only assuming. I know that the manufacturers of electric heating apparatus will resent such statements as I will make, but what of that?

The Great Creator never intended that burning coal, burning wood or using electric energy for heating and cooking should be the "finale" in the art of heating, else he would not have permitted the brains of the best known men of the age to evolve such wonderful uses for gas.

The Great Creator would not have shown scientific research men that gas, the inflammable element in all combustible substances is only one of thousands of other valuable elements to be found in the things we burn up in our mad rush

to get warm or to do things of all kinds that require heat.

The day is not far distant when gas will be the greatest element of the age, it is now, but is only one-tenth exploited. Electricity is not in reality a heating energy. It is a crime, an affront to the maker of all things, to use electricity as a heating element. It is a power energy, and as such will cut down cost of production, cut down cost of transportation and as a matter of fact reduce the cost of living at least by one-third.

Now, with the above statements made, let us begin and analyze them, let us delve first into the romantic story of gas, let us just, as it were, peep into the past as well as the present and future, and, in that way look the situation squarely and from all angles.

Discovery of Gas

In the first place comes the discovery of gas. Where it was first discovered is somewhat uncertain, but as far as can be learned, gas was discovered many centuries ago. A story is told of a Grecian shepherd, who, while tending his sheep, found that some of them began to wander about the pasture in an

aimless, half stupified manner, when in one particular spot.

He walked over to the place to find out the reason for this strange behaviour and became similarly affected by something coming from the ground. After recovering from the strange sensation he hurried to the village and told the neighbors of his experience. Crowds gathered round the place and decided that the odor was caused by some supernatural agency, because each person present appeared to become more talkative and light-headed and not only acted strangely, but speech became disconnected and difficult to understand.

The people finally decided that they were in the presence of some god, and later appointed a priestess to keep in touch with this god and built a temple where people could procure all manner of advice. Thus it is said that the oracle of Delphi became famous.

These Grecian experiences were no doubt the finding of natural gas, and while we at this date may laugh and sneer at the superstitions of those earlier Greek folk, yet if we were to look into some of our silly practices and superstitions, we would find that

(Continued on page 18)

"The Final Round in Landing Old Sigh Low for A Compleat Plumbing Job"

Jerry Meets With Unexpected Success in Bringing Old Sigh Low and His Wife to Look Over the Display of Plumbing Fixtures

With apologies to Ring Lardner by MAJOR L. L. ANTHERS, Managing Director, Anthes Foundry Co., Ltd., Toronto

Tarraboone, March 13, 1923

Dear Friend Al:—

I am now goin to tell you abt the 3rd and finel round with Sigh Low the 4th concessn hick. As purr my preevious lettrs. I had alreddy pade 2 visets 2 his farm & the last time I got a frea meel & a chanct to spill my doap on plumbing & heating.

"Aint you got that job landed yet?" sez Bill when I come back from my 2nd trip.

"No I havent," I retortured, "I tolde you befoar that it wernt no suddin dethe propcsn.—Its a big job & it takes time."

A Life Job

"If it takes as much time 2 finish it as it takes you 2 land it, itll bee a life job," come back Bill. "2 dilay is dang-gerous."

"Is zazzo," I snipped. "Well if, '2 dilay is dangerous, sometimes 2 delay 2 de-lay, is dangerous.' Witch means he hoo hezitates 2 hezitate is lost."

"Howzat," sez Bill lookin puzzled like.

"I thot it wld B 2 deap fer you," I sneared with satisfactn.

"In other words, 'look B 4 you leep,' lest 'fooles rush inn were angles feer to trod.'" I werent goin to let him think he was the only guy on erth that had studyed the Book of Proverbs. "Furthramore, 'sure & steddly wins the day.'" Wile I had Bill gaspin at my perdigious lernin I ask him, "Did you ever heer Esops faible of the Tortus & the Hair? If you reember the hair didnent win the race."

Wass too Long Sez Bill

"Praps it was too long," sez Bill.

"What?" sez I, "the race?"

"Naw," sez Bill, "the hair! Haw haw, haw." & with that he dived outta the back dore laffin fit to splitt.

Thats the way with some guys, jest as soon as you pull somethin that is over there heds they tries 2 retalyate with sum bum joak.

Well I was sittin in the show-room



JERRY

Read how he landed one of the hardest prospects in his rural district for a compleat plumbing and heating job.

figgern the next move in the great human drama wen hoo should come into the dore but Missus Sigh Low.

I hopped up quickern scat and lifted my cap to her.

Pize Makes Mouth Water

"Good-mornin Missus Low," I sez, "I'm awfully glad to see you agen. Them pize of yourn makes my mouth water every time I thinks of them." Thats the kind of stuff to hand them Al—they likes it.

She looked bashful like and coffer a little.

"Mr. Low just came to town with a load of grain so I thot Ide step in hear and wate fer him," she sez confushed-like.

"I'm sure glad you did," I retortured nown full-well it was a fraim up & that theyd come 2 town apurpus to look over

sum plumbing goods. But I didnt let on—that aint my style.

See What We're Here For

"Now that your hear," I sez, "Ide like 2 show you arnd.—let you see wot weer hear for." & with that I begin to go over every thing in the show-room with her. I felt jest like an artist xplainin the buties of sum wunderful lanscrape paintins. And did the old laidy lissen? Ile saye she did. She hung onto my everyy werd jest like I ust to hang onto Dutch Wagners flies.

A Voyce at the Door

I guess I musta bin speelin fer oaver ½ an hr. wen I herd a voyce at the shop dore say; "Are you reddy?"

I looked around & sure enuff it was old Sigh hisself. He was lookin strate at the old lady pertendin like he didnt see me.

"Ah how are you Mr. Low," I expostulates in my most affible manor.

"Good-day," he recipricates as if the effort hurt him.

"Come rite in," I continyers, "Ime jest xplainen fixtrs 2 Mrs. Low."

He didnt say nothin, I begins the lion of tock Ide bin carryin on for the last ½ hr. The old laidy was wize & lissens in as if it was all knew stuff she was hearin. I watched the old geezer outa the korner of my I & I cld C that he was fllern every werd I sed.

"Thats the kinda bath we put in fer Si Ensilage," I remarked incidentaly, "a 5 ft. 6 role rimm."

The Best You Got

"That the best you got," he sez frownin & lookin at the bath. I purty neer lost my ballence with serprize.

"Oh no," I shoots sudden, "weeve got somethin a little better but it dont cost much more," & I shode him 1 with a shower attachment. Then I got to explainen water sistems. & shode him a lay-out we had on the flore 2 gether with a blue print of a layout witch we had on the wall.

"How much wood a compleat outfit cost?" he shot at me.

I purty neer took the count but, a managed to keep my feat.

"Jest come in the office hear," I sez, fer I had his job all figgered out as neer as possible. "I think I can give you a fare estymate."

I wanted to git him outa the show-room for I didnt want to have him faint befoar the publik gaze wen I shode him the figgers.

But he didnt turn a hare & I new that he had a perty good idea hisself of what the cost wood B. "Dont you think your high," he mermers lookin hard at the figgers.

Not High

"No Mr. Low," I sez, "not fer the kind of a job you want. And rember this, your job is goin 2 have the carefulllest of supervizion & if your not satisfide weal take the hole job out & itll cost you nothin." That sounds big Al, but it dozent mean nothin. Ide maid up my mind he was goin 2 B satisfide & that was all their was 2 it.

"Come out & C me Thurs. nite," he sez, & with that he ges up & stawks outta the shop the old lady follern him. She stole me a look like a grate'ul dog.

"All-rite," I siz smilin my grashiest, "Ile B their. Good-by until then." I bowed like a Torryadoor with my hat in my hand until they was well on the weigh.

"Whew!" the sweat was bustin out of evry poar & I felt like Ide bin pitchin a dubble hedder at Louisville on a sultry day.

"Jerry your a wunder," come a still small voyce from the back of the shop.

There was Vilet

I looked up & their was Vilet smilin like a bit of sunshine after a rain. I was still week & smiled back weekly.

"Aw gwan," I sez feelin the blushes creapin all over me.

"Bleeve me Jerry," she sez blushin herself, "I opologize for raggin you like I did—fer I never herd enny 1 put up a better sails tock than you jest put over—onnest Injun I didnt."

2 heer Vilet tock that weigh maid me feal as if ide drunk a pale full of sham-pain. It was 2 good 2 B troo.

"Aw Vilet your foolin—your jest givin me a jolly," I manaiges to say not known jest what I was sayin.

Shows the Supplies Used in Contracts

St. John, N.B., Plumber Finds Customers Appreciate Opportunity of Inspecting and Choosing From Varied Stock the Requisites for Their Contracts

LAST spring W. B. McDonough, plumbing and heating contractor, opened a large shop on Charlotte Street in St. John, one of the busiest streets. One half of the store he allotted to the sale of plumbing supplies and the other half to the sale of hardware. In the rear is his plumbing and heating contracting and jobbing office.

Mr. McDonough has placed one of his

sons in charge of the store which is equipped with two large display windows. Attractive window exhibits are arranged and changes made at regular intervals. In the store, Mr. McDonough has shown to his clients the supplies he uses in his contracts. He has found that his customers have been delighted at the opportunity of inspecting and choosing
(Continued on page 24)

"Dont you bleeve it,—Ime in ded ernest."

"Vilet I eld kiss you fer sayin that," I blerts out, & then realizin what I sed I makes a iginiminius retreat fer the back door.

It had just come out I eldnt help it. But bleeve me Al I ment it & may be sum day I will. But moar of that anon.

Yours as ever,
Jerry.



"I pretty neer took the count but managed to keep my feet when he asked if this was the best outfit we had."—Jerry.

PROBLEMS OF HYDRO PUMPS

(Continued from page 14)

that will be found satisfactory, in order to give any reasonable flow, while manufacturers generally assume a minimum of 20 lbs., with a maximum of from 40 to 50 lbs.

It is an easy step from the syphon bottle example, to the typical hydro pneumatic system in which the tank takes the place of the bottle, and the pump delivers the water from the well into it, gradually compressing the air to the desired point.

The first essential of such an arrangement is that the tank must be absolutely air tight, because compressed air forms the entire motive power by which water is delivered at the fixtures.

The water is discharged into the tank on one side near the bottom, and out of the tank from the other side somewhat lower down, the only other two connections to the tank being those of the water glass mounting, only one of which is above the air line.

We are often asked "how high should the water be in the glass?"

The answer is, that in a general way the glass on a vertical tank should be approximately half full of water at fifty pounds pressure. This gives slightly less than $\frac{4}{5}$ of water, and a little more than $\frac{1}{5}$ of air.

There is really no hard and fast rule about this, the only difference in the effect is that if it is considerably higher, the pressure will have to be pumped up more frequently, because the amount that may be discharged between pumping periods is exactly determined by the volume of the air cushion.

Avoid "Air-Binding"

Reference was made to the fact that the discharge from the pump enters the tank at a level higher than that from the tank to the house. The reason for this is not yet sufficiently understood, even by tank manufacturers who have had no pump experience, but it is so that any air which may enter the pump, either designedly in an effort to re-establish a proper balance between air and water, or accidentally through a depleted water supply or a leaky suction pump, may continually rise, from the time it enters the system until it reaches the tank. In this way, what is known as "air binding" in the pump, is entirely avoided, unless the pump discharge connection is below its valves.

The reason for having the discharge from the tank at a lower point is to ensure a complete movement and renewal, circulation, if you will, of every bit of water that enters the tank.

As the construction of a device for pumping air is essentially different from the one for pumping water, and neither will efficiently perform the function of the other, it follows that in systems of this kind, all reasonable care should be taken to ensure the work of the pump being within its scope, and, too, that one

of the precautions which ought to be taken in every case, is to fit the suction line with a foot valve at approximately its lowest point, so that the moment the pump is put into operation, the line being full, will furnish water immediately.

While most well designed pumps, and by this we mean pumps not only built to operate with a minimum of resistance, but with valve construction so arranged as to freely and efficiently discharge air, will prime themselves after being operated for a sufficient length of time to discharge the air contained in the suction line, and catch the water which will follow in its wake. There are a considerable number of alleged "hydro pneumatic" pumps on the market which absolutely refuse to perform this action, and only the unfortunate plumber, who has happened to install some of that type, realizes the endless trouble and expense that its use involves.

Moral—put the best foot valve that you can buy, on every installation you make, and avoid 90 per cent. of the chances of trouble with the system.

THIS IS THE GAS AGE

(Continued from page 15)

in many ways the foundation for some of our thoughts and actions are just as foolish as the Grecians of old.

Several centuries ago the Chinese used what we now know as natural gas, for illuminating, this gas was conveyed through bamboo sticks. Later, one John Baptist van Helmont of Brussels, a chemist of note about the year 1609, found, during his experiments with certain fuels and chemicals that gas could be made and he described this gas as "a wild spirit," and so phantom-like and elusive was Van Helmont's discovery that he called it "geist" an old German term for spirit.

In England, Thomas Shirley found natural gas and describes the gas well, or the gas, which was saturated with water, as "Oyle," and in reporting his find says, "I found a spring, the water from which did burn like oyle, and did boyle and heave like water in a pot." Further on in his report, he says: "It is like unto a string of wind which, if ignited by the light of a candle did burn bright and very vigorous."

About the year 1660, Dr. John Clayton, a Yorkshire clergyman, who being endowed with certain scientific abilities, took some of the elusive spirit out of these gases. He heated "Shelly Coal" in a closed vessel, and found that a "spirit" which, when liberated, would burn like a candle.

He made a quantity of this "spirit" and put it into bladders, pricking holes in same, setting fire to it to provide amusement for his friends.

In 1792 William Murdock first distilled coal in an iron retort, and conducted the gas through tinned and copper pipes. He afterwards lighted his own home at Redruth with gas, and being

the construction engineer for James Watt, the developer of the steam engine, he built a large apparatus, the gas from which lighted the factory.

Some of the things Murdock did in his day made people think he was allied with Old Nick. He wore wooden hats, made a gas lantern by fixing a tube to the neck of a gas-filled bladder, and the village folk were filled with dismay at the sight of such a "ghostly contraption."

The first English patent for gas making was granted to a rich German scientist named Fred Winsor, and the first streets to be lighted by gas were about the same time. The streets thus lighted were the Pall-Mall, London, England, in the year 1807. In April, 1812, Parliament granted a charter to the London and Westminster Gas Light and Coke Co., the first gas company in the world.

Somewhere about the year 1817, a Baltimore artist named Rembrandt Peale, is said to have been the first user of gas in his museum and art gallery, using same as an illuminant and later becoming one of the pioneers and shareholders in the first gas company on the American continent.

From those days until about the year 1857, great strides were made in the gas industry, in spite of the fact that gas at that time was very much more expensive than it is now. In 1855 the San Francisco Gas Co. sold gas at \$15.00 per thousand feet, and sold lots of it. In New Orleans, about the same time, gas cost about \$22.50 per thousand, with New York about \$18.00 per thousand feet. It is only fair to say, however, that coal in those days cost around \$36.00 to \$40.00 per ton, and labor was \$6 to \$7 per day.

Then and Now

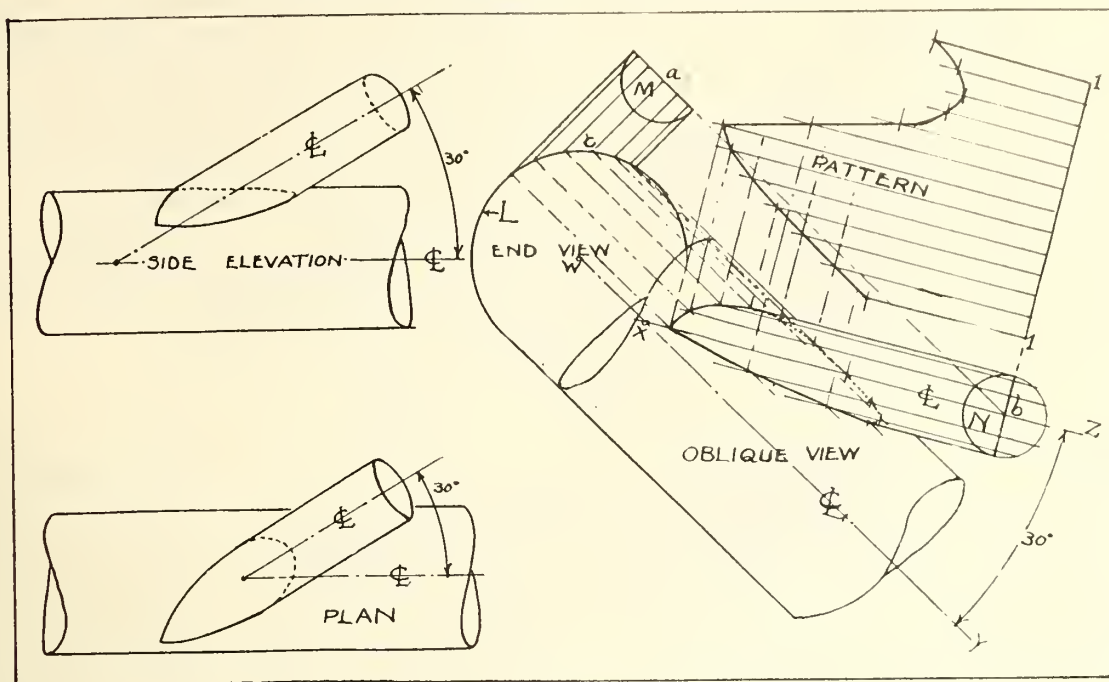
In those days the thousands of feet of gas used per day were few. To-day, for example, the Consumers Gas Co., Toronto, sell 19 to 20 million feet per day, and it is estimated that in the neighborhood of fifty million people are served by gas companies on this continent alone, and it is safe to say that only the surface has been scratched, as it were, of the possibilities and prospective business that will be procured in a very few years.

Today the efficiency of a product must be considered seriously. We need heat and fuel must be used of some kind. Gas is a fuel, yet it also is a by-product. Let this be thoroughly understood: "Gas is a by-product." Now, if we, as a people, mis-use a natural or even a manufactured product, we must pay the cost in some form or other. The users of electricity for heating and for cooking are just postponing that day when capital can and will no longer be found to erect huge power plants when this same electric current ought to be used for the purpose of electrify-

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Oblique Angled Branch Pipe Patterns

By O. W. Kothe, Principal, St. Louis Technical Institute, St. Louis, Missouri. Written for Sanitary Engineer.



Development of Patterns for Oblique Angled Branch Pipe.

AT TIMES the workman meets with tee branches where they form an angle in elevation and also an offset angle in plan. This is in most cases tee branches of this kind that can be re-designed to intersect the main pipe by either changing one or the other angles and in that case, a common tee would be suitable.

But where we have an elevation where the tee inclines to a 30 degree or any degree for that matter; and the plan offsets, let us say 30 degrees in this case, then the following treatment would be used. We first project an end elevation describing the main pipe L from the center W and then set in the tee branch with section M. Observe this branch sets tangent with the main pipe L. Now our side elevation and our plan view are merely help out views in which we only consider the center axis line.

Therefore, at right angles to center of line of tee, a-c of end view, square out a line from the center W as W-Y. Then from any place as X strike a 30 degree angle as X-Z. Then from a of end view bring over a line parallel with X-Y and this will intersect line X-Z in point b. This enables drawing the section N and divide into the same number of equal spaces that section M is. Then from each point in section N project lines parallel with X-Z, extending them to about the central line X-Y. After this, consider each point where the lines from M intersect similar lines drawn from section N. This will give the intersections

between the tee and the main pipe. To set off the pattern pick the girth from N and set it at right angles to X-Y as I-I.

From each of these points in line I-I, draw stretchout lines and then from each point in the miter line of oblique view, project lines to intersect stretchout lines of similar number. This will give the miter cut for patterns as shown.

In general, the degree figures would be omitted and we would have elevation and off-set distances given by measurements of the rule. In that case, the end view would be developed in accordance with the off-set of the branch pipe in plan. Whatever measurements would be these measurements would be substituted instead of the degree lines we show. Then the elevation altitude would be picked and set in the oblique view, so that the line a-b would intersect this altitudinal line which would give the true angle of the branch in the oblique view. By considering these fittings in a triangulation fashion where the plan produces the off-set, or the base, and the elevation the altitude; then by putting these two together in the oblique view, the true length is produced. Otherwise, the actual development is identical to any of the other common tee branches of different diameters.

MORE INSPECTORS NEEDED

The wide expansion of building operations in Montreal has necessitated the augmenting of the present staff of six employed as building inspectors. It is

felt that the building regulations in the city could be more effectively enforced if the present staff was enlarged, the suggestion being that several men having technical building experience be added. The matter is now in the hands of the Executive Committee. Toronto employs nineteen inspectors as compared with six in this city.

QUESTION BOX

Kindly give us your opinion on the following. We have just installed a basin fitted with pedal action valves which of course have in their make up a spring and when the operator releases the pressure from the pedal the valve closes with a chuck and often when there is very little pressure on the pedal there is considerable vibration causing a rattling noise. Would air cushions remedy the above?—Ontario Subscriber.

Answer:—Yes, all such valves should be fitted with liberal sized air chambers.

MEETING PAT

A pawnbroker's shop was on fire and a woman spectator was greatly excited; every few minutes she would urge the firemen to more strenuous efforts, until presently a bystander said, "What's the matter, Missus? There ain't no one in there? What's all the fuss about?"

"Fuss? There ain't no fuss at present," replied the woman, "but there certainly will be if they don't get the fire out soon. My old man's dress suit is in hock there, and he don't know it."

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Forsaking the "White Collar"

IT IS good news that clerks and other "white collar" men are deserting their desks and taking to the plumbers' tools, trowel, hammer and saw, in order to earn bigger wages and that the New York Y.M.C.A., in announcing the establishment of a school to teach brick-laying, plumbing, electric wiring and carpentering, states that the heavy enrolments indicate that a large number of office workers are turning to manual labor, attracted by the fatter pay envelope.

It is to be hoped this is an indication that young men are beginning to see that "white collar" jobs are by no means the most satisfactory in the end. This is a point which has been emphasized by many authorities. The tendency has been far too long for young men to seek such jobs, instigated in far too many cases by ambitious parents. We have often pointed out that the professions are becoming overcrowded, and that it would be far more profitable for a young man to become a skilled mechanic in many cases than a struggling professional man.

The point in this dispatch is, however, that clerks are leaving their jobs to take up manual labor. It is a good sign; and we hope that many "white collar" men will take to the plumbing trade. We hail this news from New York with great pleasure, and hope that men in Canada will be wise enough to take a hint from it. The plumbing industry will suffer from a shortage of efficient help in years to come if the apprenticeship problem is not dealt with now.

The Canadian Society

IT IS of interest to note that the officials of the Canadian Society, Domestic Sanitary and Heating Engineers have decided to hold a convention this year. The gathering is to be held in Montreal in the month of June, according to preliminary details secured by Sanitary Engineer and outlined elsewhere in this issue.

The annual convention of the Canadian Society was missed last year and there has been a good deal of discussion in provincial and municipal associations on the advisability of making a drastic revision of the status of the Canadian Society. Attendance at the last few conventions of the latter body has not been what it should be, and the reason has been given that the members of the craft as a whole cannot turn out in a body owing to the distance many of them would have to travel and the expense involved. Similarly it has been found

difficult at the conventions of the Canadian Society to get much definite action on matters of national interest due to the fact that there have been no representatives on hand from far Western associations, and also due to the wide difference of opinion which exists on many subjects between members in the various eastern provinces.

Whether or not the idea of making the Canadian Society an executive body which will hold annual gatherings attended by special representatives of the various provincial associations, is adopted, something should be done to enable the plumbers of the country to speak with one voice on many of their current problems. Then and only then will the plumbers of this country be able to bring about many of the reforms and improvements now contemplated.

There are many live local associations of plumbers and steamfitters, and there are live provincial associations in most of the provinces throughout Canada. There is much to be gained by a definite linking up of the efforts of these associations.

Fooling the Public Again

THE need for plumbers to be constantly on the watch for fake schemes is again demonstrated in the disposition of the case of R. J. McLelland, by which he is given seven years' imprisonment in connection with the sale of securities in the Instantaneous Heater Company in Canada and in a similar organization under a slightly different name in the United States. Claims were made for this electric heater by the so-called inventor which would not stand investigation, and care was taken that the product was not investigated. Electric heaters are now practically 100 per cent. efficient and in view of this it is surprising that claims of getting more than a hundred units of energy out of a hundred were accepted by such a large number of persons who should have known better.

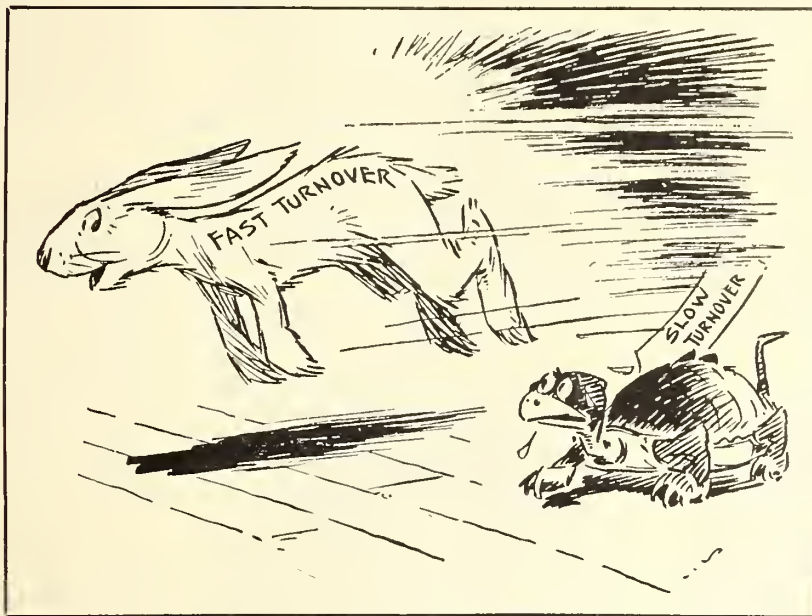
Where Dollars Can be Saved

GREAT care should be exercised in connection with the preparation of the Income Tax forms which will provide the basis for taxation on individuals and businesses for this year. All retail merchants must have their returns filed with the Department of Taxation by April 30th. All reports of earnings of employees must be filed with the Department not later than March 31.

Judging from enquiries which have come to Sanitary Engineer, plumbers are taking more pains with these statements this year than in the past, or else they are more anxious to see that they are not overtaxed. The correct filling in of these forms has developed into a matter of much importance, as incorrect statements may involve the payment of a larger amount than is necessary, or bring a bill at a most unexpected time in the future for the balance due on taxes which the plumber considered to be fully paid. The question of depreciation on buildings, equipment, vehicles, etc., and the allocation of bad debts are two subjects on which difficulty very frequently arises. Elsewhere in this issue will be found a second article to guide the plumber in the preparation of his income tax reports; this article follows that which appeared in a recent issue. Also in this issue is an article covering a number of difficulties which have been experienced by plumbers in the preparation of their income tax statements. These articles should be studied carefully by the trade, as many dollars can be saved by following the forms as outlined.

MINUTE MESSAGE

Written for "Sanitary Engineer" by FRANK STOCKDALE
(Buying Series)



Forget the Fable—"Put Your Money" on the Rabbit

Turnover is purely a matter of speed.

Your stock is made up of "Hare" lines and "Tortoise" lines—fast and slow turnover lines.

Of course, some Hares are faster than others and some Tortoises are slower than others.

Rate of turnover will tell you nothing about your volume of sales, nor will your volume of sales tell you anything about rate of turnover.

Turnover only tells you how fast your stock moves.

Two turnovers mean that the goods moved twice in a year or once in six months. In other words it took six months for the goods to travel through your store.

Fast turnover lines cost *less* to carry and sell and can be sold at a lower margin for profit. Slow turnover lines cost *more* to carry and sell and must be sold at a higher margin for profit or you lose.

When you sell fast moving lines at a long margin you are likely to lose customers. When you sell slow moving lines at a short margin you usually lose profits.

It is very important, therefore, that you know which are the "Hare" lines and which are the "Tortoise" lines in your store.

THINK IT OVER—APPLY IT IN YOUR BUSINESS.

All Rights Reserved

(Exclusive Publication in the Plumbing Trade in Canada)

News Notes From Coast to Coast

Doings in the Plumbing and Heating Industry

INCORPORATION

Gill Plumbing Supplies Ltd., incorporated at Galt, Ont., with capital of \$40,000 to manufacture and deal in plumbers' supplies.

FIRE LOSS

Porcelain Products Ltd., Toronto, dealers in plumbing supplies suffered fire loss in a recent conflagration of large proportions.

OBITUARY

J. Madden, who conducted a plumbing shop at 1140 St. James St., Montreal, and who lived in the rear of the shop, is dead.

PLUMBER ON THE SHORT END OF THE DEAL

St. John, N.B.—James H. McPartland, well known plumbing and heating engineer, handed over a valuable diamond ring to the employee of a jewellery store for examination. A substitute for the valuable stone was placed in the setting and returned to Mr. McPartland. On noticing the difference he placed the case in the hands of the police. So far no recovery has been made of the ring nor any arrest been made of the principal thief.

MOVE TO NEW PREMISES

Growth in the business of T. G. Griffiths & Company, Toronto, manufacturers of septic tanks, drinking fountains, etc., has necessitated their removal from their former premises at 15 Jarvis St., Toronto, to much more commodious quarters at 165 Queen St. East. In their new quarters in which they are just now getting settled, they will have the advantage of an exceptionally fine ground floor showroom where the various lines they manufacture will be on display.

CONGRATULATIONS IN ORDER TO THOMAS JOHNSTON

Thomas Johnston, president Thomas Johnston Co. Ltd., plumbing and heating engineers, Summerside, P. E. I., has been elected Councillor for the ensuing term. Voting in that town is done in March of each year. In connection with Mr. Johnston's election it is noteworthy that R. T. Morrison, plumber; Messrs. Johnston & Huestis, plumbers; Harry F. Lee tinsmith; Jas. Arthur tinsmith; were prominent among the boosters for Mr. Johnston.

With such a galaxy of members of the craft supporting him it is little wonder that Mr. Johnston was elected. Sanitary Engineer extends congratulations.

SPEAKER FROM HARVARD

Montreal.—Dr. George C. Whipple, Professor of Sanitary Engineering at Harvard University, delivered a lecture at the Windsor Hotel, his subject being "Industrial Sanitation." This was the third of the series of lectures of Industrial Medicine which is being given under the auspices of McGill University.

WATER SYSTEM FOR INDIAN VILLAGE

Campbell River, B. C.—W. M. Halliday, of Alert Bay, Indian Agent, is at Cape Mudge Indian village superintending the installation of a water system, which the residents of the village are putting in under his tutelage.

A large concrete basin is being constructed to hold the water from the creek that flows down the hillside, and a two and a half inch pipe will carry the water to two and a half inch laterals. From these laterals the 25 or so houses will be connected up by each of the householders and good water and a continuous supply assured to all dwellers in Cape Mudge.



E. G. BROUSSEAU

Plumber of Quebec City, who has been elected President of the Quebec Builders' Exchange for 1923. The Vice-President is J. K. Leonard; Treasurer, F. A. Galarneau; Secretary, J. E. Picard.

CONTRACTS AWARDED

Peterboro, Ont.—Nelson Bros. have contract for plumbing in house of Albert Cripps providing the mortgagor joins in the request to have the work done, the cost to be paid for in five annual instalments with six per cent. interest as directed by the Board of Health.

McAVITY'S, LTD., NAME OF THIS FIRM IN QUEBEC PROVINCE

The Canada Gazette contains a notice of the incorporation of McAvity's Limited, with a capital stock of \$100,000, and head office at St. John. This is a branch of T. McAvity & Sons, Ltd., of St. John, hardware and metal merchants, and brass and iron founders, and will carry on the business in the Province of Quebec.

SAYS STOVE MERGER UNLIKELY

Rumors have been going the rounds in the hardware trade recently concerning the likelihood of a merger of five stove manufacturers, including one large Toronto firm. Hardware and Metal has made some enquiries and been advised authoritatively that the Toronto firm at least is not concerned and it is said to be quite likely that the rumor as far as the other firms is concerned is but a revival of the rumor which has been heard from time to time in the same connection.

SEWER TROUBLE IN NORTH TORONTO

North Toronto ratepayers are seriously worried over the sewer situation as it affects their district. They fear that the action of the city Works Department in connecting up the laterals for the proposed combined system will cause trouble next summer. After discussing the situation, the association at a meeting referred to the Executive the matter of procuring an injunction restraining the city Works Department from making further new connections.

North Toronto citizens want to see the plans for the new system at once. If the plans are not forthcoming they are determined to take drastic action to force their production. It was stated that the Works Commissioner had promised to submit them in June. The association passed another resolution urging its representatives in the City Council to insist on immediate production of the plans.

CENTRAL HEATING PLANT PROPOSED

Winnipeg.—Negotiations are now under way, it is learned on good authority, to establish a central steam-heating plant in Fort Rouge. Substantial interests willing to spend \$500,000 almost immediately will approach the city council soon with a request for a franchise. It is proposed to develop steam for the projected Fort Rouge plant by means of off-peak electricity bought from the hydro-electric system. This would make for cheap, economic operation of the plant through electrical boilers, but a certain amount of coal or oil firing would be necessary also. The revenue which such a plant would bring the hydro from the sale of its surplus energy, in this way, is estimated at \$30,000.

F. A. DALLYN SPEAKS IN FOREST, ONTARIO

Forest, Ont.—The ratepayers were present at a special meeting in the council chamber of the Forest council called to meet F. A. Dallyn, Chief Engineer of the Provincial Board of Health, who came to interview the council in regards to the Board's order re the installation of waterworks.

Mr. Dallyn in his opening remarks said the matter between the council and the Board of Health dated back several years. In September, 1921, a survey of the town wells was made, which showed there were 521 premises in the town and 304 wells; 201 of these wells were badly polluted and only 15 or 20 per cent. were considered satisfactory. They had already taken surveys in 79 municipalities and in no case did they find a municipality with water conditions as bad as they are in Forest. Thirty per cent. of polluted wells was the usual run, but in Forest's case it was 75 per cent. The cheapest and best way to remedy this was the installing of a waterworks system. As the ratepayers had defeated the project on two occasions, the Board of Health considered the only way was to act upon the powers given them in sec. 46 of the Municipal Act. The town had not very much leeway in the matter. As there has been no amendment to the Board's Order, it therefore should be enforced.

STOP WATER WASTE IN MIMICO

Mimico council at its meeting refused to grant the Mimico Utilities Commission \$10,000 to purchase water meters, and advised the commission to ask the water users to stop wasting water. The commission stated that the waste of water would be stopped if meters were installed, but the council thought that the cost was too high.

Two Plumbers Killed in Serious Accident

Motor Car Hit by Train Near Weston, Ont., Resulted in Death of Harry Wilson and Frank C. Warde, Employees of B. J. Miller, Sanitary Engineer

WESTON, Ont.—Frank C. Warde, aged 24, and Harry Wilson, aged 18, two employees of the plumbing firm of B. J. Miller & Co., Bathurst St., Toronto, were instantly killed when the motor car, driven by Warde, was struck by a train from Guelph at a level crossing two miles west of Weston. Hit squarely in the centre, pieces of the car were found along the tracks several hundred yards from the scene of the collision. Passengers knew nothing of the fatality until the train was brought to a stop and members of the crew had gone through the cars in search of a

physician. It is stated that the signal bell on the crossing was ringing but it was probably drowned by the greater noise of the train.

Harry Wilson had been with the Miller Co. about two years, learning the steam-fitting trade. Mr. Miller states that Warde, a qualified plumber, and young Wilson were highly esteemed by the firm and fellow employees. Warde had decided to go to Brampton to get a motor car and had asked if either of the apprentices cared to go. Wilson accepted the invitation.



HARRY WILSON

Harry Wilson, an apprentice, and Frank Warde, a qualified plumber, both employees of B. J. Miller & Co., sanitary engineers, of Toronto, who were instantly killed at Weston, Ont., when their motor car was struck by a train.



FRANK WARDE

WOULD ELIMINATE SMOKE TEST

The greater part of the last meeting of York Township Council was taken up with a discussion of the best ways and means to formulate a plumbing and drainage by-law, embodying the best points of the present city and township by-law. The idea of Reeve Jury and the members of council seemed to be to get away from any unnecessary cost in the matter and the elimination of the smoke test was held to be one of the best moves in this direction. At the present time no permits are issued to the men doing the drain work on township houses, nor yet in the city, and council are anxious to keep tab on the drain men, so that in the event of trouble later developing any difference between the drain men

and the plumbers can be followed to a conclusion.

EXTEND INTAKE PIPE

New Toronto.—An extension to the town's intake water pipe, costing approximately \$40,000, will be made early this spring. The Utilities Commission and Council have already agreed that the extension is necessary to insure a high pressure. In the meantime, council will issue debentures covering the expense.

Moves Premises

Port Arthur, Ont.—L. A. Greene, plumber, has moved to 5 S. Court St.

THIS IS THE GAS AGE

(Continued from page 18)

ing our railways and other transportation systems.

We could easily transport our own gas-producing coal to our towns and cities to convert the coal into gas much cheaper, if our steam roads were run by electricity. Just think of this, reader, one-third of all the coal mined on this continent is used to fire the steam locomotives, which draw the coal from the mines to where it is used. Then, to cap this costly waste, even the very coal used in the most efficient steam locomotive, only gives off about 6 per cent. energy at the draw bar. Meaning that out of the one-third of coal mined, we only procure about 6 per cent. efficiency, an absolute waste of millions of tons of coal every year.

Now regarding the cost of fuels based upon actual results, we are often confronted with the question as to cost or of efficiency in results.

The cost of any fuel should be measured by the amount of heat units delivered. For example, the Kansas Agricultural College recently made some tests which show what gas will do in heating water in comparison with other fuels.

The following table shows the percentage of B. T. U. delivered:

Coal	18 per cent
Kerosene	37 per cent
Gasolene	40 per cent
Artificial gas	64 per cent

The above figures were based upon gasoline at 19,000 B. T. U. per pound, coal 15,000, gasolene 20,000, and knowing the price per pound of each, it would be simple to make a clear comparison of cost, and thereby determine the efficiency.

(To be continued).

SHOWS SUPPLIES USED IN CONTRACTS

(Continued from page 17)

from a varied stock, the requisites for the contracts they assign to Mr. McDonough. And in addition, Mr. McDonough has found a considerable transient demand for small bath room supplies, such as soap holders, nickel bars, shower baths, sprays, shampoo motors, etc. The opening of the store has increased Mr. McDonough's contracting business, and further, has advertised his business as a contractor, placing him before the eyes of people who had never heard of him before he embarked in the supply business, catering to the public.

Does it pay for a plumbing and heating contractor to enter into the plumbing supply, and hardware business in a retail sense?

The experience of Mr. McDonough, plumbing and heating contractor of St. John, N. B., has been in the affirmative.

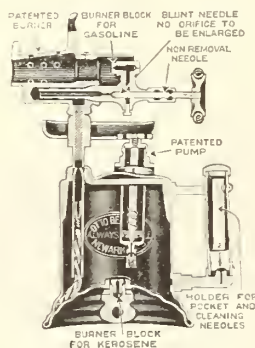
For many years Mr. McDonough has been a plumbing and heating contractor in St. John and has worked up an important business in both branches par-

ticularly in contracts for plumbing. Until last spring he engaged in contracting and jobbing only, with office on Princess Street in St. John. However, for some years he had been considering the establishing of a large plumbing supply store with which he associated also the sale of hardware. Mr. McDonough believed there would be trade for plumbing supplies such as bath tubs, lavatories, tubs, clothes washing machinery, shower baths, bath room necessities, etc. It was his idea that the person who wants plumbing done wants to see the supplies that are used, and so his showroom has been developed.

New Goods

Combination Improved Torch

A new combination torch, said to be characterized by four distinct improvements, is being introduced by the Otto Bernz Co., Newark, N. J., under the trade name of "always reliable." The improvements claimed are a blunted burner needle, which will not enlarge the orifice, conveniently located burner blocks for gasoline or kerosene, special



type burners are said to give a perfect blue flame in a minimum of time and heavier construction in the body and bottom of the torch. The top of the cylinder is flared to provide against injury to the washer when the plunger is inserted.

Gurney Electric Ranges

The Gurney Foundry Co., of Toronto, are introducing on the market a line of electric ranges and hot plates. There are three cabinet types of electric ranges, which differ in finish and a few details only, while there is also a lower oven model for small kitchens. It is pointed out that other types will follow. These are in addition to the hot plates. Referring to the finish of these electric stoves, it is stated that white rock porcelain enamel is used for all enamel

finishing, including the oven lining. All ranges are equipped with mercury thermometers. Switch front is finished in white rock enamel with blue lettering. The surface units are of the open type. The makers claim that the general assembly is such that all parts are accessible. The Northern Electric Co., Ltd., are acting as the exclusive sales distributors for Canada.

LETTER BOX

Bruce Stewart Co., Ltd.,
Charlottetown, P.E.I.

Replying to your telegram, asking information on oil burning equipment for Ideal steam heating boilers.

We inform you, that both these lines are handled in Canada by the Dominion Radiator Co., Ltd., Dufferin St., Toronto, and we have requested them to communicate with you by wire immediately.

SANITARY ENGINEER

Twenty Years - Ago -

Following items are reprinted from MacLean Publishing Company trade paper records of March, 1903:

"President Robert Ross occupied the chair at a special meeting of the Toronto Master Plumbers' Association this week."

"Bennett & Wright Co., Ltd., have contracts for plumbing, gasfitting and electric wiring two houses on Crescent Rd. for Macpherson Estate and for wiring Trinity Methodist Church, Toronto."

"The new factory which the Standard Ideal Sanitary Plumbing Co. are erecting in Port Hope, Ont., is progressing steadily. The company have decided that it is not quite big enough for their purposes and so are having plans prepared for an addition which will be 93x45 ft. in size."

"The National Association of Plumbers of Great Britain are agitating for the passage of the Plumbers' Registration Bill, which has been before the British House for some time. The association went on record approving the movement as a safeguard to public health."

"A meeting of the Joint Committee representing the Master Plumbers' Association and the Journeymen Plumbers' Union met to discuss the apprenticeship question, particularly the length of time one would have to be employed before getting the tools."

"The Hamilton Journeymen Plumbers' Union held their first annual banquet when sixty members were present. President Fred Staunton occupied the chair. The Master Plumbers' Association was represented by President George Stevenson and the manufacturers and supply houses by Robert Young. The meeting was harmonious and satisfactory in every respect."

"The St. John, N.B., Water and Sewerage Board at a meeting received tenders for 184 tons of iron pipe. Among the tenderers were Singleton & Dunn, Glasgow; Montreal Pipe and Foundry Co.; United States Iron Pipe and Foundry Co.; R. D. Wood & Co.; Wm. Jacobs & Co. The tender accepted was at the following price: 4-in. pipe at \$29.40 per ton; 6-in. \$28.22; 10 and 12-in. \$27.00."

Market Conditions and Tendencies

Price Trend on Sanitary and Heating Supplies

Markets at a Glance

THE feature of this week's market report is found in the new quotations on eavestrough and conductor pipe. The discount in effect early in February was 70% off the list, this was revised recently to 60% which was an advance of 10%. The new discount in effect this week is 65 and 5 per cent. off bringing quotations back almost to the early February price. This is in direct contrast to the tendency on galvanized sheets which have displayed a strong trend for some time and a slight advance is in effect on most gauges this week. Other changes were all toward higher levels and include slightly higher prices on nickel plated pipes and brass cocks, a new advance of about 7½% on copper rivets and burrs, higher quotations for spring on rubber hose, lower discounts on plugs, bushings and unions and another general advance on solder.

Cotton waste quotations may reach higher levels in the near future as a result of continued advances in basic markets, but there has been no change in oakum prices for some time. An important customs regulation is in effect on imports of German goods which will cause an advance in German tools and cutlery of from 15 to 25 per cent.

It has been noted for some time that finished steel prices have advanced without checking buying, but it is evident that buyers are becoming more cautious and higher prices are not in favor among local distributors. The same condition is indicated in other lines but advances have not occurred with the same rapidity as in steel. A stabilized condition of all markets would be welcomed in most industrial circles.

Montreal Markets

MONTREAL, March 15.—As has been the case for some time now, primary market advances continue to affect all lines in which any price changes are being made. The latest revisions show not a single one in the downward direction, though several important advances are noted. Chief among these is the condition in the sheet and plate market. As noted in the last issue, this advance has been general, two or three price changes having occurred since that time, leaving the local market firm but considerably unsettled, jobber quotations differing somewhat. Likewise, all bar products have been revised upwards, the change being from 20 to 25 cents on all lines excepting spring steel and single reeled machinery which remained at former levels. Lead pipe and solders are included in the climb, the former being revised to the extent of about 50 cents and the latter six cents a pound. All scrap materials are considerably higher than at last quotations, malleable being up \$8 per ton and the others in like proportion. Latest quotations on eavestroughs are slightly in advance of those current for some time past. The ingot market, after a period of steady climbing, has settled down in a firm position this week, tin alone remaining erratic.

RADIATION PRODUCTS REMAIN AT RECENT DISCOUNTS

Montreal.—While a firm tone still features the radiation market locally, there has been no change from quotations recently recorded. Trading is improving each week, according to local distributors, who are quoting as follows:

RADIATORS AND BOILERS—

Radiator list prices are for 1, 2, 3, 4 and 5 column radiators, per sq. ft.
45 in. to 38 in., \$1; 32 in., \$1.10; 30 in., \$1.15; 26 in., \$1.20; 23 in., \$1.26; 22 in., \$1.30; 20 in., \$1.36; 18 in., \$1.40; 16 in., \$1.50; 14 in., \$1.55; 13 in., \$1.60. Discount 51 per cent for hot water, and 52 per cent for steam.
Wall radiators—5 ft., \$1.15; 6 ft., \$1.10; 7 ft., \$1.05; 9 ft., \$1.05; 12 ft., \$1.05; Discount 48 per cent.

Boilers—Round hot water boilers, sizes from 0 to 10, 60 per cent. off list. Square or sectional hot water or steam boilers, 15 in., 15 per cent. Square or sectional water boilers, 19 in. to 36 in., 20 per cent. Square or sectional steam boilers, 19 in. to 36 in., 17 per cent. Ontario Government trimmings, 15 per cent.
Round steam boilers, standard trimmings, 28 per cent. Ontario Government trimmings, 25 per cent.

F.o.b. Montreal, Toronto, Guelph.

UPWARD REVISION IS EXPECTED IN COMPRESSION GOODS

Montreal.—

Compression goods are holding firm at recent levels, although a slight upward tendency still features the market, so that higher prices may be expected at any time. As a forerunner of the ad-

vance, Jenkins globe valves are this week quoted at a revised discount, the discount dropping from 10 per cent. to 5 per cent. The prices now being quoted locally are as follows:

VALVES AND BIBBS—

Compression work, standard	45%
Fuller work, standard	30%
Quick opening compression bibbs	43%
Bath cocks, quick opening	41%
Bath cocks, compression	41%
Basin cocks, quick opening	46%
Flatway stop and waste cocks, standard	56%
Roundway stop and waste cocks, standard	56%
Brass steam cocks, standard, ¼ in.	50%
Radiator valves, standard	55/25%
Do., removable discs	55/25%
Globe, angle and check valves, standard	25%
Gate or straightway	25%
Emco globe valves	33%
Emco check valves	33%
Jenkins globe, angle, check and swing	
check	5%
Jenkins gate or straightway	16%
Jenkins iron body, globe and angle	15%
Jenkins iron body, gate	25%
N P. "O" and "S" traps	40%

STRENGTHENING MARKET NOTED IN BOILER TUBES

Montreal.

A firm market continues in boiler tubes, trading showing some little improvement which should continue from now on. As yet the slight advance which has been anticipated for the past week or so has not come into effect, the prices being quoted locally remaining as follows:

BOILER TUBES—

	Seamless	Lapweld
1 inch	20 00	....
1¼ inch	22 00	....
1½ inch	21 00	....
1¾ inch	24 50	24 00
2 inch	21 50	20 00
2¼ inch	24 50	23 00
2 inch	29 00	24 50
3 inch	34 00	31 00
3½ inch	39 50	35 50
4 inch	50 00	45 00

Prices, per 100 ft., f.o.b. Montreal.

PIPE FITTINGS RETAIN FIRM TENDENCIES

Montreal.

Prices are unchanged on pipe fittings in the local market, the tendencies being towards a firmer market with increased prices in the very near future. Prices now quoted are as follows:

PIPE FITTINGS—

Cast iron fittings	22%
Plugs, cast iron	22%
Do., solid	22%
Do., countersunk	22%
Bushings, cast	25%
Do., malleable	25%
Unions	40%
Flanged unions	22%
Flanged fittings	27 1/2%
Dart unions, black, 1/2 to 2 in.	331-3%
Do., 1/2 in., 2 1/2 in., and larger	23%
Do., galv. add to black	30%
Nipples, 1/2 to 4", close and short	50%
Do., long	55%
Do., 4 1/2 to 8", close and short	40%
Do., long	45%
Couplings, 4" and under	25%
Do., 4 1/2" and larger	5%

Malleable Fittings—

Piece list effective June 1st, 1922. Discount 68 per cent.

TRADING REMAINS LIGHT IN CLOSET COMBINATIONS

Montreal.

Trading in closet combinations, bowls, seats and tanks continues fairly light, though local distributors state that business is strengthening somewhat at present. Several slight price changes are expected during the next few days but for the present quotations remain at former levels as follows:

CLOSET COMBINATIONS—

Low Down Outfits,	each
Closet, standard outfit, oak	24 00
Do., post hinge seat	25 00
Do., oak vitro or Pussyfoot	24 00
Do., post hinge seat	25 00
Do., mahogany vitro or Pussyfoot, post hinge seat and cover	27 45
Do., vitreous china, oak post hinge seat and cover	28 45
Do., vitreous china, mahogany post hinge seat and cover	29 00
Do., white vitro or Pussyfoot, mahogany post hinge seat and cover	27 50
Do., enamelled iron tank, oak post hinge seat and cover	29 50
Do., enamelled iron tank, mahogany post hinge seat and cover	29 50
Add for 3/4" valve on supply pipe	1 25
Add for spud	0 60
Add for reverse trap bowl	1 50
Add for syphon jet bowl	7 00
Deduct for supply pipe	0 50
Deduct for floor hinge	0 60

CLOSET BOWLS—

Richelieu bowl	8 00
Washdown bowl with spud	9 50
Reverse trap bowl with spud	9 50
Syphon jet bowl with spud	15 00

CLOSET SEATS—

Oak post hinge seat and cover	3 85
Oak wood strip seat and cover	3 50
Mahogany finish post hinge seat and cover	4 05

CLOSET TANKS—

Low down, oak vitro or Pussyfoot with fittings less seat	13 20
White vitro or Pussyfoot with fittings, flush elbow and supply	15 65
Vitreous china tank with fittings, flush elbow and supply	18 00
Enamelled iron with fittings, flush elbow and supply	18 00

SHEETS AND PLATES CONTINUE UPWARD TREND

Montreal.

Galvanized sheets, black sheets and plates all continue their upward march, price changes coming so fast of late that it has caused a wide range locally, no two dealers quoting exactly the same on any of these lines. While the difference in most cases is slight, in one or two in-

stances, the variation runs high. There appears to be a steadying tendency developing during the past few days which is likely to result in the stabilization of quotations in the very near future. The following constitute the average of the prices being quoted locally at present:

BLACK SHEETS—

10 gauge, base	4 75	5 00
12 gauge	4 85	5 00
14 gauge	4 85	5 10
16 gauge	5 05	5 15
18—20 gauge	5 20	5 25
22—24 gauge	5 20	5 35
25 gauge	5 25	5 40
28 gauge	5 35	5 60

GALVANIZED SHEETS—

	Queen's Head	Fleur de Lis
18—20 gauge	6 65	6 90
25 gauge	7 25	7 50
24 gauge	6 95	7 20
22 gauge	6 90	7 15
28 gauge	7 50	7 75

Other Brands—

10 3/4 oz.	7 25	7 50
28 U. S. base	7 00	7 25
26 U. S. base	6 60	6 85
24—22 gauge	6 35	6 60
20—18 gauge	6 15	6 25
16 gauge	6 00	6 10

Above prices are for 1/2 ton lots in English iron and 1000 lb. lots in American iron with an extra charge of 25c. for less quantities. Extra for sheets 3 ft. wide, 28 gauge and 10 3/4 oz., 25c. per 100 lbs.

Further extra for sheets 4 ft. wide according to gauge.

TIN PLATE—

20 x 28 x 100 lbs. basis	15 50
20 x 28 IC, 112s	16 00
20 x 28 IX, 112s	18 00
20 x 28 IXX, 56s	11 00
20 x 28 IXXX, 56s	12 00

TERNE PLATE—

20 x 28 IC, 112s, 200 lb.	14 50
20 x 28 IC, 112s, 214 lb.	15 00

CANADA PLATE—

Half bright 52s	5 50
Half bright 60s	5 60
Blued 52s	5 90
Blued 60s	6 00
Welsh, polished, 60s	7 35
Welsh, polished, 52s	7 10
Galvanized, 52s	8 00
Galvanized 60s	8 50

LEAD PRODUCTS IN STRONG UPWARD REVISION

Montreal.

Lead products have made a distinct climb during the past week or so, pipe making a fifty cent advance and solders mounting six cents in all lines. The market is very strong at the present time, with signs of additional strength immediately. The prices now being quoted are as follows:

LEAD AND ZINC PRODUCTS—

Lead pipe, per 100 lbs., up to 2"	14 50
Do., 2" to 8"	15 50
Do., 8" and over	16 50
Lead waste, per 100 lbs.	15 50
Note—Lead pipe is subject to a discount of 100%	
Lead traps and bends	15 60
Lead wool, lb.	0 14 1/2
Lead sheets, 2 1/2 lbs., sq. ft. lb.	0 12
Lead sheets, 3 to 3 1/2 lbs., sq. ft. lb.	0 11 1/4
Do., 4 to 8 lbs., sq. ft. lb.	0 11
Cut sheets, 1/4 c. lb. extra and cut sheets to size, 3/4 c. lb. extra	0 34
Solder, guaranteed, lb.	0 31
Do., strictly, lb.	0 30
Do., commercial	0 30
Do., wiping, lb.	0 30
Do., wire, lb.	0 44 1/2
Zinc, sheets, casks	0 11
Do., broken lots	0 12

GENERAL INCREASE IN PRICES OF BAR PRODUCTS

Montreal.

There has been a general advance of from twenty to twenty-five cents in all lines of bar iron and steel products, excepting spring steel and single reeled machinery steel which remain at former

prices. The market continues with a very firm tone, trading being good at the new prices. The following are the local quotations:

IRON AND STEEL—

Common bar iron, 100 lbs.	3 65
Refined iron	5 15
Irish finish machinery steel	3 70
Mild steel	3 65
Single reeled machinery steel	5 00
Band steel	4 15
Sleighshoe steel	3 65
Spring steel	6 00
Tire steel	3 85
Harrow tooth steel	3 80
Toe caulk steel	4 55
Mining tool steel, per lb.	0 19
Black Diamond tool and cast steel, per lb.	0 19

NOTE.—Refined iron is approximately \$1.50 per cwt. over base, but fluctuates owing to unsettled market.

Band steel in scroll bundles, 50c per 100 lbs. extra.
Iron and steel 3-16 in. and thinner, 50c per 100 lbs. extra.

TRADING STILL LIGHT LOCALLY IN ENAMELED WARE

Montreal.

While trading is still reported as fairly light, the firming process on the market for enameled ware is already being felt. Prices quoted are unchanged from the upward revision noted in the last issue when they were fixed as follows:

ENAMELED WARE—

Sinks, roll rim—	
18 x 30	\$23 00
Sinks, flat rim—	1 only 2 only 3 only
16 x 24	\$ 7 50 \$ 7 40 \$ 7 30
18 x 30	8 70 8 60 8 50
20 x 30	9 90 9 80 9 70
Bath tubs, roll rim, 4, 4 1/2, 5 feet, 24 to 30 in. wide	51 40
Bath tubs, 5 1/2 feet.	57 10
Lavatories—	
17x19 in. Apron F139 or P4045	15 80
18x24 in. Apron F154 or P3845 or P3847	23 60
18x21 in. Apron F169 or P4205	17 60
17x19 in. Roll rim. F241 or P4345	12 60
Less 30 per cent.	

COTTON WASTES REMAIN FIRM AT PRESENT PRICES

Montreal.

A firm market is being maintained in cotton wastes locally, but as yet there has been no revision in price, although an upward move would not come as unexpected. Trading is firm at the following quotations:

COTTON WASTES—	Per lb
Cream polishing	0 21
White, XXX extra	0 18
White, XX grand	0 17
White XLGR	0 16
X Empire	0 14 1/2
X Press	0 13

Colored—

Fancy	0 15
Lion	0 13 1/2
Standard	0 12
Popular	0 10
Keen	0 08

Wool Packing—

Arrow	0 25
Axle	0 21
Anvil	0 17

Dominion W's—

White cotton	0 18
Colored cotton	0 13

QUOTATIONS ARE UNCHANGED ON RANGE BOILERS

Montreal.

Quotations on range boilers remain unchanged locally, no change having been recorded in some weeks. There is a firming tendency to trading, though the off-season slackness has not been

fully cleared as yet. List prices and discounts are as follows:

RANGE BOILERS:—

5 Gallon	\$13.50
12 "	14.00
18 "	15.00
25 "	16.50
30 "	17.50
35 "	20.50
40 "	22.75
52 "	38.00
66 "	60.75
82 "	74.00
100 "	103.00
120 "	117.00
144 "	164.00
168 "	187.00
192 "	210.00

Std., less 40 per cent.; Ex. Heavy, 30 per cent.

SOIL PIPE AND FITTINGS ARE FIRM LOCALLY

Montreal.

A firm undertone continues to feature the market locally in soil pipe and fittings. While spring trading has not yet opened up to any appreciable degree, local manufacturers report satisfactory business with indications for further strengthening shortly. Prices now quoted are as follows:

SOIL PIPE—

2 and 3 inch	35%
4 inch	35%
5 and 6 inch	35%
8 inch	net

FITTINGS—

2 to 6 inch	45%
8 inch	net

ASBESTOS PRODUCTS ARE FIRM WITH NO PRICE CHANGES

Montreal.

Asbestos products remain without change in quotations, the present levels having been maintained for some time past. Seasonal activities in trading are reported, business strengthening noticeably with the approach of spring. The current quotations are:

ASBESTOS PRODUCTS—

2 ply pipe covering	Off list prices 57 1/2%
3 ply pipe covering	55%
4 ply pipe covering	50%
85% magnesia	40%
Boiler covering	\$1 50
Asbestos sheathing	Per 100 7 75

SAP BUCKETS AND SPOUTS ARE REMAINING FIRM

Montreal.

Trading in sap buckets and spouts becomes more active with the early approach of spring. There has been no further change in local quotations which are as follows:

SAP BUCKETS—

Straight Pattern—Per 100, No. 7, \$16.10; No. 8, \$17.50; No. 9, \$19.60; No. 12, \$21.00; No. 16, \$25.20.
Extra Heavy—No. 12, \$25.90; No. 16, \$31.50.
Frontenac—10 qt., \$22.19.
Western Pattern—6 qt., \$15.75; 10 qt., \$21.00.
Galvanized Straight—No. 9, \$23.00; No. 10, \$27.00; No. 12, \$27.00; No. 16, \$31.00.
Square Syrup Cans, one gallon, \$16.75 per hundred.
Spouts—Perfection, \$20.00; Eureka, \$17.00; Sterling, \$24.65 in lots of 1000.

GENERAL UPWARD REVISION IN SCRAP METAL MARKETS

Montreal.

During recent weeks there has been an upward trend in the entire scrap metal market, although the upward march seems to have been stayed during the past few days, no new prices having

been announced. Since last issue there has been a general revision in all lines, brass, copper and lead having advanced from one cent to one and one half cents a pound, malleable scrap advanced \$8.00 per ton and like revisions have been made throughout the list. The current local quotations are as follows:

SCRAP MATERIALS—

Automobile tires	0 50
Rubber shoes	0 03
Yellow brass	0 05 1/2 to 0 06
Red brass	0 09
Light brass	0 04 1/2
Scrap zinc	0 04 3/4
Lead, heavy	0 05
Lead, tea	0 03
Light copper	0 08 1/2 to 0 09
Heavy copper	0 11 1/4
Wrought iron, R. Rd., No. 1, per gr. ton	12 00
Malleable scrap (ton)	9 00 to 10 00
Pipe scrap (ton)	7 50
Heavy melting steel	9 00 9 50
No. 2 busheling	3 00
Boiler plate	3 00 to 9 00
No. 1 machinery cast	20 00 to 22 00

EAVESTROUGH PRICES REVISED TWICE RECENTLY

Montreal.

During the past fortnight eavestrough quotations have been twice revised, once upward and then downward, leaving the present quotation not far from that of two weeks ago. From a 70 per cent. discount, a cut was made to 60 per cent. but within the past few days a second revision has brought this up to 65 and 5 per cent. Trading is not so heavy

as it has been but is reported on the upgrade. The current prices being quoted locally are as follows:

EAVESTROUGH—

O. G. round and half round, per 100 ft. 3 in., \$16.90; 10 in., \$18.70; 12 in., \$22.20; 15 in., \$35.50; 18 in., \$45.00.
O. G. Square bead, per 100 ft. 8 in., \$15.90; 10 in., \$17.70; 12 in., \$21.20; 15 in., \$34.50; 18 in., \$44.00.

Discount 65 and 5 per cent.

CONDUCTOR PIPE—Round, Plain and Corrugated, per 100 ft. 2 in., \$18.40; 3 in., \$22.30; 4 in., \$29.60; 5 in., \$48.00; 6 in., \$58.80.

Discount 65 and 5 per cent.

CONDUCTOR ELBOWS—

Plain or corrugated, price per doz. 2 in., \$5.25; 3 in., \$6.00; 4 in., \$10.50; 5 in., \$24.00; 6 in., \$29.00.

Discount 65 and 5 per cent.

CORRUGATED SHEETS FIRM AT RECENT REVISION

Montreal.

Since the advance mentioned in the last issue there has been no further change in the local quotations on corrugated sheets. The revision at that time covered all sizes and varied from 7 to 15 per cent. The prices now being quoted for sheets are as follows:

CORRUGATED SHEETS—	Per 100 sq. ft.
No. 28 gauge	7 00
No. 26 gauge	7 50
No. 24 gauge	10 00
No. 22 gauge	12 50
No. 20 gauge	14 00
No. 18 gauge	19 00
Less 10 per cent.	
Lighter than 24 gauge and wider than 27 ins., 75 cents per square extra.	

Toronto Markets

TORONTO, March 15.—Important price changes are again in evidence in local market reports, with the majority of adjustments toward higher levels, the exception being a reduction in quotations on eavestrough and conductor pipe. The lines on which advances are in effect include nickel plated supply pipes, waste pipes and traps, brass cocks, rubber hose, solder and galvanized sheets. There is also a slight advance in the price of blue and black sheets, and on plugs, unions and bushings.

The position of the iron and steel lines remains unchanged with the exception of cold rolled steel on which a slight increase is in effect. The other goods in this list have remained firm at the recently revised prices. There is an evident desire on the part of distributors to stabilize prices on steel and iron at present levels, higher prices being considered a hindrance to trade.

Canada plates and tin plates are maintained on a firm basis, the higher prices noted in basic market reports have not been reflected in the price of these sheets locally. Stocks of ordinary Canada plates are scarce and quotations are withdrawn in some quarters. Cotton waste prices are expected to reach higher levels in the near future as a result of recently noted advances in quotations from primary sources.

Trade conditions are generally satisfactory, with a slight improvement noted in some sections. Weather conditions are retarding spring activities to some extent but building programmes are taking shape in many centres.

GERMAN GOODS SUBJECT TO HIGHER TARIFFS

Toronto.

New customs regulations are in effect on imports of German goods. Cutlery, tools and general lines of hardware and plumbing supplies will be higher in price by 15 to 25 per cent. as a result.

TROUGH AND PIPE QUOTATIONS ARE LOWER

Toronto.

The feature of the week's market report is the drop in price of eavestrough and conductor pipe. Basic materials have continued firm and quotations on the local market have reflected the same

trend, trough and pipe however have taken lower price levels and are back very near the levels quoted in January. The new discounts are 65 and 5 per cent. from the following list.

TROUGH (EAVE)—

O. G. Square Eave—		Per 100 ft.	Per 100 ft.
8 inch	15 inch	\$15 90	34 50
10 inch	17 70	18 inch	44 00
12 inch	21 20		

O. G. Round and Half Round

8 inch	15 inch	35 50
10 inch	18 70	45 00
12 inch	22 20	

Less 65 and 5 per cent.

PIPE (CONDUCTOR)—

Plain, round or corrugated.		Per 100 ft. in 10 ft. lengths
2 in., in 10 ft. lengths, list		18 40
3 in., in 10 ft. lengths, list		22 30
4 in., in 10 ft. lengths, list		29 60
5 in., in 10 ft. lengths, list		48 00
6 in., in 10 ft. lengths		58 80

Less 65 and 5 per cent.

ELBOWS (CONDUCTOR)—

2 inch, list	5 25
3 inch, list	6 00
4 inch, list	10 50
5 inch, list	24 00
6 inch, list	29 00

Less 65 and 5 per cent.

SLIGHT ADVANCE IN NICKEL PLATED PIPE AND FITTINGS

Toronto.

Advanced quotations are in effect on nickel plated supply pipes, waste and overflow pipes and traps on the local market. The new prices are about 1 per cent. higher than former quotations. There is also an advance of from 2 to 5 per cent. on some lines of brass cocks and brass fittings. Following are the new discounts applying on these lines.

BRASS COCKS—

Key stop and waste roadway	54%
Socket head stop and waste	42%
Patent cap stop and waste	33%
Brass fittings	53%

BATH AND BASIN SUPPLIES—

3/8" N. P. brass per pair	2 20
With Wheel handle stop per pair	4 60
Waste and overflow 1 1/4" each	3 75
Do., 1 1/2" each	4 15
Nickel plated traps, disc.	34%
No. 3633 basin cocks	43%
No. 3830 bath cocks	40%

BLUE AND BLACK SHEETS HIGHER IN PRICE

Toronto.

The price movement toward higher levels in primary markets, has been reflected in local quotations on blue and black sheets. Blue annealed quotations showed a wide variation recently, this has undergone a change and the variation to-day is slight. Black sheet prices have advanced about 2c per cwt., with a variation of 25c per cwt. quoted in some quarters. The new list follows:

BLUE ANNEALED SHEETS—

10 gauge, base	4 40	4 60
12 gauge	4 45	4 65
14 gauge	4 50	4 70
16 gauge	4 55	4 75

BLACK SHEETS—

18-20 gauge	5 00	5 25
22-24 gauge	5 05	5 30
26 gauge	5 10	5 35
28 gauge	5 25	5 50

A charge of 25c. per 100 lbs. is made for less than case lots. An extra 10c. per 100 lbs. is also charged on sheets 26 in. wide.

RUBBER GARDEN HOSE PRICES ADVANCED

Toronto.

The season's prices on garden hose are announced and it will be noted that they are higher than quotations formerly in

effect. The advance is about .01c per foot on all grades, the new list following shows to-day's prices.

GARDEN HOSE—Per 100 ft.—

Plain 1/2" three ply	\$9.50	1/2" four ply	\$10.50
1/2" five ply	\$12.00	1/2" six ply	\$13.50
3/4" three ply	\$11.00	3/4" four ply	\$12.00
3/4" five ply	\$13.00	3/4" six ply	\$15.00
1" four ply	\$14.00	1" five ply	\$15.50
1" six ply	\$18.00		

Corrugated—1/2" \$14.00; 3/4" \$15.50; 1" \$17.50.

SOLDER PRICES AGAIN SHOW AN ADVANCE

Toronto.

Following higher levels reached in quotations on basic metals, another advance has taken effect in the price of solder. There is a variation noticeable in local quotations but the difference is slight. The new list follows.

LEAD AND ZINC GOODS—

Lead pipe, per 100 lbs., up to 2"	14 50
Do., 2" to 8"	15 50
Do., 8" and over	16 50
Lead waste, per 100 lbs.	15 50

Note—Lead pipe is subject to a discount of 10 per cent.

Lead traps and bends	15%
Lead wool, lb.	0 14 1/2
Lead sheets, 2 1/2 lbs. sq. ft. per lb.	0 12 1/2
Lead sheets, 3 to 3 1/2 lbs.	0 11 3/4
Do., 4 to 8 lbs., sq. ft. lb.	0 11 1/2
Solder, guaranteed, lb.	0 29 0 34
Do., strictly, lb.	0 27 0 30
Do., commercial, lb.	0 27 0 29
Do., wiping, lb.	0 25 0 30
Do., wire, lb.	0 27 1/2 0 29 1/2
Zinc sheets, casks	0 11
Do., broken lots	0 12

COPPER RIVETS AND BURRS ADVANCE SLIGHTLY

Toronto.

Another advance in price is in effect on copper rivets and burrs making the second adjustment in recent weeks. The list showing new discounts is given below.

COPPER RIVETS—

No. 7	Per lb. 0 40 1/2
No. 8	0 41 3/4
No. 10	0 44 1/2
No. 12	0 48

COPPER BURRS—

No. 7	0 64
No. 8	0 65
No. 10	0 70 1/4
No. 12	0 75 1/2

RIVETS AND BURRS ASSORTED—

No. 8	0 46 1/2
No. 10	0 49 1/2

Copper rivets with usual proportion of copper burrs (under 1-3 of combined weight of copper rivets and burrs)

List less	10%
Copper rivets, List less	10%
Copper rivets with burrs where burrs are over 1-3 of combined weight of copper rivets and burrs. List plus	40%
Copper burrs only, list plus	40%

SAP BUCKETS ENJOYING SEASONAL ACTIVITY

Toronto.

A brisk seasonal activity is noted in sap buckets and syrup cans. The season started in most localities somewhat earlier than usual and a good syrup yield is anticipated. Recently revised quotations on buckets as shown in the following list, are in effect locally.

SAP BUCKETS—

	Per 100
No. 7 straight	16 30
No. 8	17 50
No. 9	19 60
No. 12	21 00
No. 16	25 20
No. 6, Western	15 75
No. 10	21 00
No. 8, galvanized straight	23 00
No. 12	27 00
No. 16	31 00
No. 10, Western, galvanized	27 00

GALVANIZED SHEETS REFLECT FIRM PRICE TREND

Toronto.

Quotations on galvanized sheets have reflected the firm trend recently noted in primary market reports. Higher price levels being in effect on most regular lines of imported and domestic iron. The variation in quotations on Queen's Head has disappeared and slightly higher prices are in effect on the heavier gauges, 28 gauge remaining at the old level. The new list is shown below.

GALVANIZED SHEETS—

	Premier and Apollo
10 3/4 oz.	6 65 7 25
U. S. 28 base	6 50 6 75
U. S. 26 base	6 20 6 45
22 and 24	6 05 6 30
18 and 20	5 90 6 15
16	5 95 6 00
12 and 14	5 60 5 85

Queen's Head

28 gauge base	7 25
26	6 85
24	6 55
22	6 40

Fleur de Lis

28 gauge, base	6 90
26	6 50
24	6 20
22	6 05

V. C.

28 gauge	6 80
26	6 50
24	6 20
22	6 10

An extra 40c. per 100 lbs. is charged for Keystone and Premier bands copper-bearing sheets.

An extra is now charged on galvanized sheets, 10 3/4 oz. and 28 ga., when shipped out in sheets 3 feet wide. The extra charged over prices shown in 20c. per 100 pounds.

ADVANCE RECORDED IN FITTINGS PRICES

Toronto

Slightly higher price levels are in effect on bushings, pinions and plugs on the local market. The adjustment is from 2 1/2 to 5 per cent. over old quotations. The list below shows to-day's discounts.

PIPE FITTINGS—

Cast iron fittings standard	22%
Do., do., extra heavy	25%
Plugs, cast iron	20%
Do., solid	20%
Do., countersunk	20%
Bushings, mail	22 1/2%
Bushings, cast	22 1/2%
Unions, 1/4 in. to 2 in.	35%
Unions, 1/2 in. to 4 in.	35%
Flanged unions	22%
Flanged fittings	27 1/2%
Do., 1/8 in. to 2 1/2 in. and larger	23%
Do., galv., add to black	30%
Nipples, blk. and galv. 1/4 to 4 in., close and short	50%
Do., 1/2 in. and larger	40%
Do., long 1/8 in. to 4 in.	55%
Do., 1/2 in. and larger	45%
Do., running thread	30%
Couplings, 4 in. and under	25%
Do., 1/2 in. and larger	50%

MALLEABLE FITTINGS—

New piece list, adopted June 1, 1922.		
1 in. elbow	0 32	0 53
2 in. elbow	1 05	1 70
1 in. tee	0 43	0 70
3 in. tee	1 45	2 40
1 in. coupling R. & L.	0 33	0 59
1 in. locknut, R. & L.	0 15	0 23
Discount. Less 68 per cent.		

HIGHER QUOTATIONS IN EFFECT ON BOLT DIES

Toronto.

Quotations on bolt stocks and dies have been changed on the local market. The new prices are 10 per cent. higher than those formerly in effect. The new list is not available but will appear in an early issue of Sanitary Engineer.

CANADA PLATES AND TIN PLATES REMAIN FIRM

Toronto.

The price of Canada plates and tin plates has not shown any change recently. Basic market reports continue to show strength and higher levels would not be surprising. There is a wide shortage on plain Canada plates and quotations on this line are being made by the majority of dealers. The list below shows local quotations in effect.

PLATES, CANADA—	Per box
Dull, 60 sheets	6 75
Blued and oiled, boxes 52's	5 50
Do., boxes, 60's	5 60
Polished, 52 sheets	6 65
Plain 52 sheets	4 90
Do., 60 sheets	5 00

WELSH CANADA PLATES—

Cold polished, 18 x 24, 60's	6 25
Cold polished, 18 x 24, 60's	6 50

PLATES, COKE TIN—

IC, 20 x 28, 112 sheets	12 75
IX, 20 x 28, 112 sheets	15 00
IX, 20 x 28, 56 sheets	8 60

PLATES, CHARCOAL TIN—

IX, 20 x 28, 112 sheets	10 00
IX, 20 x 28, 56 sheets	12 00

PLATES, TERNE—

IC, 14 x 20, 112 sheets	12 00
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IRON AND STEEL PRICES HOLDING FIRM

Toronto.

The prices quoted locally on iron and steel have showed only one minor change during the week. Firmness is the feature of all quotations in this market both bars and sheets showing remarkable strength, the only price development of the week however was in cold drawn steel on which quotations were higher by 15¢ per cwt. To-day's list follows.

IRON AND STEEL—

Mild steel bars and small shapes \$3 60	\$3 75
Mild steel bands, 3-16 in. base 4 00	4 25
Bar iron, base	3 75
Horse shoe steel	4 25
Tire steel	3 60
Spring Steel	10 50
Sleigh shoe steel	3 50
Cold drawn steel	4 60
Hoop steel, heavier than 1"x20G 4 75	5 00
Do., Lighter than 1"x20G 5 35	5 50
Norway iron	12 50
Toe caulk iron	4 20
Crucible cast sheet steel	28 00
Mining drill steel	18 50
Cast tool steel, high grade	30 00

SOIL PIPE PRICES REMAIN STATIONARY

Toronto.

There has been no change in the quotations on soil pipe and fittings this week. The market is holding firm but spring trading has not assumed heavy proportions. Discounts continue at the following list.

SOIL PIPE—

2 inch	Less 33 1-3%
3 inch	Less 33 1-3%
4 inch	Less 33 1-3%
5 and 6 inch	Less 33 1-3%
8 inch	net

FITTINGS—

8 inch fittings	net.
2 to 6 inch	Less 45 per cent.

ENAMELLED WARE MAINTAINED AT RECENT PRICE CHANGE

Toronto.

The advance in price noted in a recent issue of Sanitary Engineer, is holding firm on quotations on enamelled ware. Spring activity is gradually becoming

more evident with the approach of warmer weather.

ENAMELED WARE—

Enamelled Iron Baths, 3" roll rim, 4 ft., 4 ft. 6 in., 5 ft.	51 40
Do., 5½ ft.	57 10
Lavatories—	
17x10" Apron F139 or P4045	15 30
18x24" Apron F154 or P3845 or P3847	23 60
18x21" Apron F169 or P4205	17 60
18x21" Roll Rim, F197, F199 or P4655-6	15 40
17x19" Roll Rim, F241 or P4345	12 60
Sinks, Roll Rim, 16x24 in.	18 10
Do., 18 x 30 in.	23 00
Do., 20 x 30 in.	24 70
Sinks, Flat Rim—	3 only 2 only 1 only
16x24	\$7 60 \$7 70 \$7 80
18x30	8 50 8 60 8 70
20x30	9 70 9 80 9 90

QUOTATIONS ON ASBESTOS PRODUCTS FIRM

Toronto.

There is no change in this week's market on asbestos board, sheets or pipe covering. Spring trading promises to be brisk, the quotations following are being well maintained.

ASBESTOS PRODUCTS—

Pipe Covering—	
Air cell, 4 ply	50 per cent. off list.
Air cell, 3 ply	55 per cent. off list.
Air cell, 2 ply	57½ per cent. off list.
Boiler Covering	\$1.50 — \$2.00 per bag.
Asbestos Sheathing	\$8.00 per 100 lbs.
Magnesia pipe covering	less 35 per cent.

RANGE BOILER PRICES SHOW NO CHANGE

Toronto.

A continued even tone marks quotations on range boilers, in local markets. Trading continues moderate at the following list.

RANGE BOILERS—

Size.	List Price.
5-gallon	\$13 50
12 to 16 gallon	14 00
18-gallon	15 00
25-gallon	16 50
30-gallon	17 50
35-gallon	20 50
40-gallon	22 75
52-gallon	38 00
66-gallon	60 75
82-gallon	74 00
100-gallon	103 00
120-gallon	117 00
144-gallon	164 00
168-gallon	187 00
192-gallon	210 00

Discounts, Standard weight, 40 per cent.
Extra heavy, 30 per cent.

COTTON WASTE PRICES SHOW STRENGTH

Toronto.

Continued strength is evident in quotations on cotton waste and higher prices are probable. The rising costs of basic materials is gradually being reflected in local cotton markets. The following list is in effect to date.

COTTON WASTES—

Cream, polishing	\$ 0 21
White, XXX	0 21
Do., XX	0 18
Do., X	0 17
Do., XC	0 15½
Do., XXX extra	0 18
Do., XX grand	0 17
Do., X L C R	0 16
Do., X Empire	0 14½
Do., X Press	0 13
Colored, No. 1	0 14½
Do., No. 17	0 13½
Do., No. 1 A	0 12½
Do., No. 1 B	0 11½
Do., Fancy	0 15
Do., Lion	0 13½
Do., Standard	0 12
Do., Popular	0 10
Do., Keen	0 08

Above lines subject to trade discount for quantity.

CLOSET COMBINATIONS, TANKS AND SEATS UNCHANGED

Toronto.

Quotations on closet combinations, tanks and seats have remained steady at recently revised levels. Trading is showing better proportions as the season advances. The list in effect follows.

CLOSET COMBINATIONS—	Each
Oak, Wood Tank, Oak W. S. Seat and Cover	24 00
Oak Vitro Tank, Oak W.S. Seat and Cover	24 00
Oak Pussyfoot Tank, Oak W.S. Seat and Cover	24 00
Oak Wood Tank, Oak P.H. Seat and Cover	24 50
Oak Vitro Tank, Oak P.H. Seat and Cover	24 50
White Vitro Oak Woodstrip Seat and Cover	24 50
White, Pussyfoot Oak Woodstrip, Seat and Cover	25 50
White Pussyfoot, Woodstrip Seat and Cover	25 50
White Vitro Tank, Mahog., P.H. Seat and Cover	26 50
White Pussyfoot, Mahog., P.H. Seat and Cover	26 50
White Vitro or Pussyfoot, oak, P.H. Seat and Cover	26 00
Mahog. Pussyfoot, Mahogany P.H., Seat and Cover	27 00
Vitreous China Tank, Oak P.H., Seat and Cover	27 00
Enam. Iron Tank, Oak P.H. Seat and Cover	28 75
Vitreous China Tank, Mahog., P.H. Seat and Cover	29 00
Enam. Iron Tank, Mahog., P.H., Seat and Cover	28 75

ADDITIONS OR REDUCTIONS ON ABOVE—

If supplied less bend or offset, deduct ..	0 50
If supplied with reverse trap bowl, add ..	1 50
If supplied with BOT Reverse Trap bowl Add.	2 25
If supplied with plain syphon jet bowl Add.	7 00
If supplied with N.P. stock cock on supply Pipe, Add.	1 50
If supplied less brass and rubber floor flange and bolts, Deduct	0 60
If supplied less bend or offset, deduct ..	0 50
If supplied less N. P. supply pipe deduct ..	0 70

CLOSET BOWLS—

Washdown bowl with spud	10 60
Reverse trap bowl, with spud	12 10
Syphon jet bowl, with spud	17 00
"Richelieu" bowl	10 50

CLOSET TANKS—LOW DOWN—

Oak wood, Tank and inside fittings with bend and supply	13 20
Mahog. Wood Tank, and inside Fittings with bend and supply	15 40
Oak Vitro or Pussyfoot Tank and inside Fittings with bend and supply	13 45
White Vitro or Pussyfoot Tank and Inside Fittings with bend and supply	13 40
White Enam. Tank F-585 or P.9262, or White Vitreous China Belmeade Tank with fittings (as above)	18 00

CLOSET SEATS—

Oak Rich. Seat and Cover to wall	3 50
Oak Woodstrip Seat and Cover with bolts ..	3 50
Oak Woodstrip Seat less Cover with bolts ..	2 90
Oak Post Hinge Seat and Cover	3 85
Mahog. Fin. Post Hinge Seat and Cover	4 75

BOILER TUBE PRICES STILL UNCHANGED

Toronto.

The prices quoted on boiler tubes are still holding firm at the list shown below. No special activity is reported in this line but business is said to be satisfactory.

BOILER TUBES—

Size	Seamless.	Lap-weld
¾ inch	\$19 00	\$
1 inch	20 00	.....
1¼ inch	22 00	.....
1½ inch	24 00	.....
1¾ inch	24 00	23 00
2 inch	22 00	19 00
2¼ inch	24 00	21 50
2½ inch	27 00	23 50
3 inch	34 00	28 50
3¼ inch	36 00	33 00
3½ inch	38 00	33 00
4 inch	50 00	42 00

BOILERS AND RADIATORS UNCHANGED IN PRICE

Toronto.

There is no change in quotations on boilers and radiators up to the present.

Late trade news has been of an optimistic character, business being described as exceptionally good and prospects for future business bright. The list showing discounts in effect follows.

RADIATORS—

Revised radiator list prices are for 1, 2, 3, 4 and 5-column radiators per square foot.
38 in., \$1; 32 in., \$1.10; 30 in., \$1.15; 26 in., \$1.20; 23 in., \$1.26; 22 in., \$1.30; 20 in., \$1.36; 18 in., \$1.40; 16 in., \$1.50; 14 in., \$1.55; 13 in., \$1.60.

Discount on 2, 3, 4 and 5 column standard sizes, 51 per cent. for water and 52 per cent. for steam.

Discount on 1-column standard size, and 2, 3, and 4-column hospital sizes 43 per cent. for water and 44 per cent. for steam.

Discounts on 1-column hospital size, water 29 per cent; steam, 30 per cent.

Wall radiators—5 ft., \$1.15; 6 ft., \$1.10; 7 ft., \$1.05; 9 ft., \$1.05; 12 ft., \$1.05. Discount 43 per cent.

BOILERS—

Water:

Round 60 per cent. off list. Square 20 per cent. off list.

Steam:

Round, 25 per cent. off list; Square, 15 per cent. off list.

WROUGHT PIPE QUOTATIONS UNCHANGED

Toronto.

No further change has marked quotations on wrought iron pipe. The recent-

ly revised list as shown below continues to be well maintained.

WROUGHT PIPE					
Price List No. 57.		February, 1922.			
Standard		Butt-weld		Pipe S/C	
		Steel	Gen.	Wrot.	Iron
		Blk.	Galv.	Blk.	Galv.
Size					
1 1/8 in.	.....	6.00	8.00	.....	.....
1 1/4 in.	.....	4.14	6.12	7.38	9.42
1 1/2 in.	.....	4.14	6.12	7.38	9.42
1 3/4 in.	.....	5.27	6.72	7.57	9.10
2 in.	.....	6.44	8.05	9.20	10.93
2 1/4 in.	.....	9.18	11.56	13.26	15.81
2 1/2 in.	.....	12.42	15.64	17.94	21.39
2 3/4 in.	.....	14.85	18.70	21.45	25.58
3 in.	.....	19.98	25.16	28.86	34.41
3 1/2 in.	.....	31.59	39.78	.....	.....
4 in.	.....	41.31	52.02	.....	.....
4 1/2 in.	.....	53.36	66.24	.....	.....
5 in.	.....	63.22	78.48	.....	.....

Standard Lap-weld Pipe S/C					
Per 100 feet.					
		Steel	Gen.	Wrot.	Iron
		Blk.	Galv.	Blk.	Galv.
Size					
2 in.	.....	23.31	28.49	32.19	37.74
2 1/2 in.	.....	34.52	42.71	48.56	57.33
3 in.	.....	45.14	55.85	63.50	74.97
3 1/2 in.	.....	54.28	67.16	76.36	90.16
4 in.	.....	64.31	79.57	90.47	106.82
4 1/2 in.	.....	74.93	92.71	110.00	130
5 in.	.....	87.32	108.04	129	151
6 in.	.....	113	140	167	196
7 in.	.....	148	183	214	255
8 in.	.....	155	193	225	268
9 in.	.....	179	222	259	308
10 in.	.....	217	269	.....	.....
10 1/2 in.	.....	202	250	291	346
12 in.	.....	260	321	375	445

less 14 per cent. while steam is quoted at net list. Round hot water boilers are quoted at 53 per cent. and round steam boilers at 17 per cent.

REVISED DISCOUNT ON STEAM AND WATER RADIATORS

Winnipeg.

There is a revision in discounts on both steam and water radiators. Three and four column steam radiators are quoted at 42 per cent. off list while water radiators are quoted at 41 per cent. Imperial hospital radiators two column steam are listed at 34 per cent. and water at 33 per cent. Wall radiators are less 38 per cent. off list price on both water and steam.

HIGHER PRICES ON STOVE PIPES AND ELBOWS

Winnipeg.

Higher quotations are in effect on stove pipes riveted and ready to rivet, also tapering pipes and stove pipe elbows.

STOVE PIPE STANDARD—

Size 6 inch	.....	15	34
Size 7 inch	.....	16	67
Ready to rivet—			
Size 6 in.	.....	13	80
Size 7 inch	.....	15	13
Riveted:			
Size 6 inch	.....	14	32
Size 7 inch	.....	15	64
Tapering Pipes—			
Size 5 x 6	.....	2	64
Size 5 x 7	.....	2	64
Size 6 x 7	.....	2	64
Size 7 x 6	.....	2	64
T Pipes—			
Size 6 inch	.....	4	27
Size 7 inch	.....	4	66
Stove Pipe Elbows, heavy—			
Size 6 inch	.....	2	56
Size 7 inch	.....	2	86
Stove Pipe Elbows, light—			
Size 6 inch	.....	1	84
Size 7 inch	.....	2	10

HIGHER PRICES ON CLOSET SEATS Winnipeg.

Higher prices are in effect on some lines of closet seats. Golden oak and birch mahogany are quoted at \$4.50 each with ivory white at \$7.00.

LOWER PRICES ON CLOSET BOWLS Winnipeg.

A slight advance has been recorded on China water closet bowls and one line fitted with spud is quoted at \$10.60 and the same with seat vent at \$10.90.

HIGH TANK CLOSET COMBINATIONS MOVE UPWARD

Winnipeg.

There has been an advance in high tank closet combinations. One line of golden oak finish with varnished high tank copper lining and nickel plated brackets is quoted at \$38.00.

CLOSET COMBINATIONS AT REDUCED PRICES

Winnipeg.

A reduction has been recorded on some lines of low down tank closet combinations. One line with a syphon wash down bowl is quoted at \$32.65 and another with a syphon jet bowl at \$37.00.

Winnipeg Markets

WINNIPEG, March 15.—The markets on all lines of plumbing, heating and sheet metal goods have been firm and many lines have shown an advance. An advance has been put into effect on boiler tubes, brass steam cocks, Jackson ball cocks, closet tanks, porcelain enameled lavatories and Royal Square sectional boilers. Steam and water radiators show an upward revision in discounts. Higher prices are quoted on stove pipes and elbows. Malleable railing fittings also show a revision in price. Golden oak and birch mahogany closet seats have moved upwards. Closet bowls show a slight decline.

BRASS STEAM COCKS MOVE UPWARD

Winnipeg.

Higher discounts are in effect on brass steam cocks. Size one quarter inch to two and one half inch is less 40 per cent.

JACKSON BALL COCKS SHOW AN INCREASE

Winnipeg.

Higher quotations are in effect on Jackson ball cocks without floats and present prices are \$1.85 each.

CLOSET TANKS AT HIGHER PRICES Winnipeg.

Higher prices are quoted on closet tanks and one line, complete with inside fittings, elbow and supply pipes, is quoted at \$16.00. Another at \$18.50 and one complete with supply pipe elbow and coupling nut at \$17.25.

HIGHER PRICES ON PORCELAIN ENAMELED LAVATORIES

Winnipeg.

A slight advance has been recorded on porcelain enameled lavatories with slab rear outlet oval bowl and apron in one piece supported on porcelain pedestal. Quotations on sizes 20 x 24 is \$33.00 and 22 x 27, \$39.40.

BOILER TUBES REGISTER AN ADVANCE

Winnipeg.

An advance has been registered on boiler tubes. New price levels are as follows:

BOILER TUBES—

1 3/4 inch, per foot	.....	0	28
2 inch, per foot	.....	0	25
2 1/4 inch, per foot	.....	0	29
2 1/2 inch, per foot	.....	0	30
3 inch, per foot	.....	0	41
3 1/2 inch, per foot	.....	0	47
4 inch, per foot	.....	0	62
4 1/2 inch, per foot	.....	0	74

REVISION IN PRICE ON MALLE- ABLE RAILWAY FITTINGS

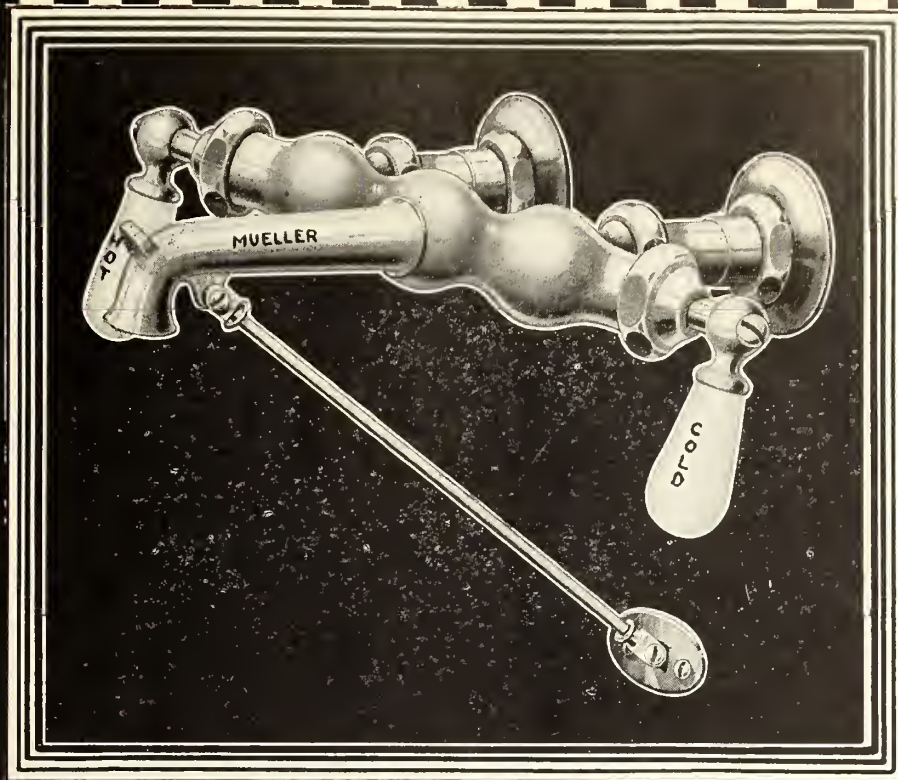
Winnipeg.

Revision in discounts are in effect on malleable railway fittings. Revised price is list price less 40 per cent.

UPWARD REVISION ON ROYAL SQUARE SECTIONAL BOILERS

Winnipeg.

There has been an upward revision in discounts on Royal Square water and steam sectional boilers. 48 inch series is quoted at list price less 6 per cent. and steam at net list price. 19 to 36 inch series water boilers are quoted at list price



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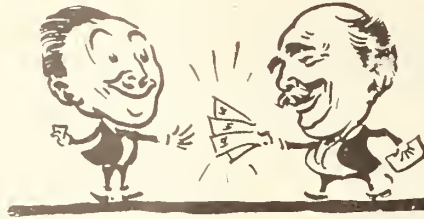
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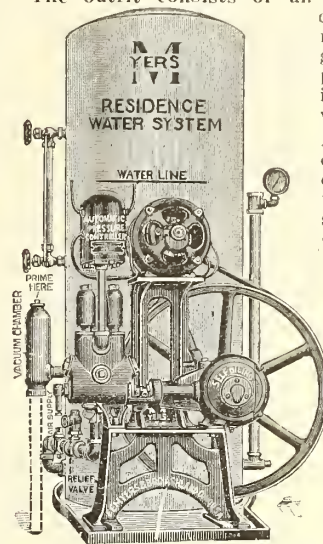
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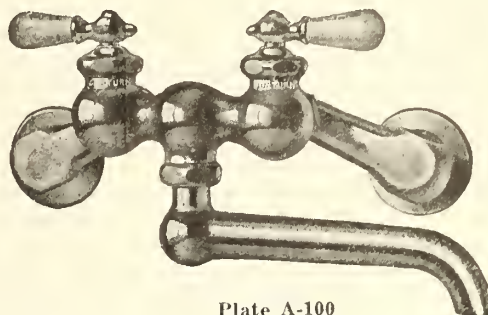


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 H. Mueller Mfg. Co., Ltd., Sarnia, Ont.

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 H. Mueller Mfg. Co., Limited.
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 The Westco Pumps Limited, Toronto.
 United Brassfounders & Engineers, Ltd., Manchester, Eng.

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 Warden King Ltd., Montreal.

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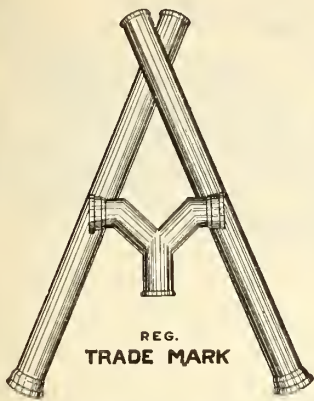
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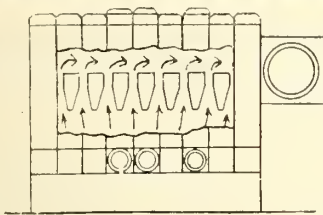
TESTED Soil Pipe

IT COSTS NO MORE AND YOU KNOW THE JOB IS RIGHT

Manufactured by

FORWELL FOUNDRY, LTD.

KITCHENER, ONT.



One Flue Opening or Many?

Many sectional boilers, you know, are made with one flue opening at the rear of the fire box. This draws the fire to the rear, leaving the front sections but partially effective.

In Burnham Boilers the flue openings are between each section, so that an equal amount of heat continually reaches each section.

Write for complete information.

Lord & Burnham Co. Limited

(BOILER DEPARTMENT)

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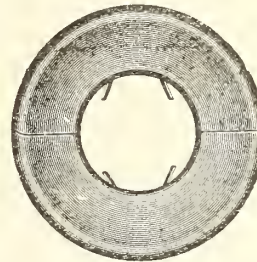


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St. Catharines,
Ontario

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Service



There's Nothing More Useful

than a good floor and ceiling plate.

Here is your chance.

No. 10-A Narrow Flange Plate is a Steel Hinged Plate, Flanges $\frac{3}{4}$ " wide. Highly finished.

Especially designed for twin connection "Narrow." Can be attached to mains and risers at the very last.

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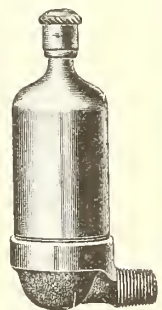
Made of the best brass obtainable. Equipped with high grade carbon. Guaranteed.

Catalogue sent on request.

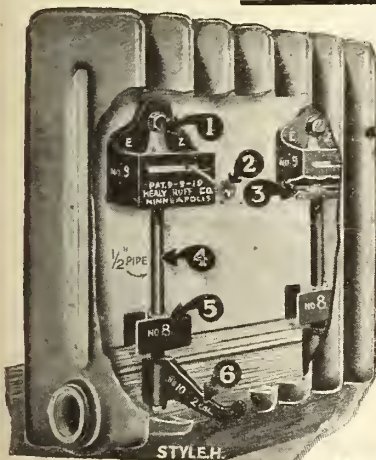
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TRY IT! The E-Z Radiator Hanger

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It hangs radiators securely and is a real device to give a neat and complete finish to the interior of every home.

The E. Z. Radiator Hanger has one Bolt, Invisible Washer, Horizontal Adjustment, Vertical Adjustment, Baseboard Adjustment.

Made for Wall and Column Radiators.

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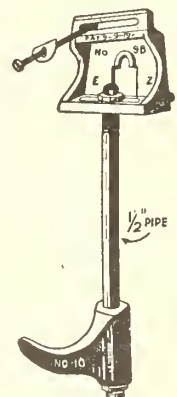
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ADDRESSING MACHINE FOR SALE—WE have a complete Belknap Addressing Equipment for sale. This equipment is still in use in our Subscription Department and is in excellent working order. We have placed an attractive price on this outfit, and would advise manufacturers or merchants having a mailing list to let us tell you how it will save you money. We will give a guarantee as to the proper working condition of this equipment. The MacLean Publishing Co., Ltd., 143 University Avenue, Toronto.

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Sanitary Engineer is a member of the Audit Bureau
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1. For Employers it enlarges their business opportunities 100%.
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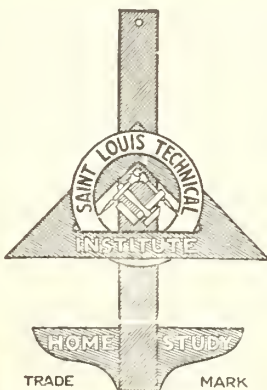
Select Your Course.

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4543 Clayton Avenue

O. W. Kothe, Prin.

St. Louis, Mo.



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What You Want!

Wolverine Pipe Joint Cement For Perfect Joints

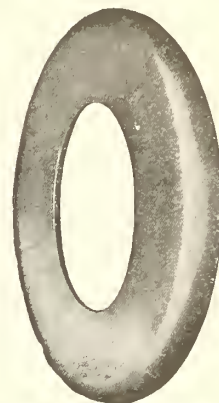
Wolverine Floor and Ceiling Plates

Narrow Pattern—Perfect Finish

Wolverine Air Vents

Metal Wheel--Wood
Wheel, and Loose Key

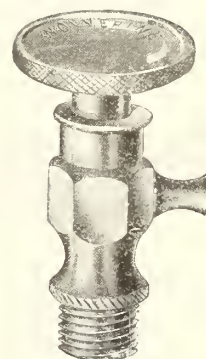
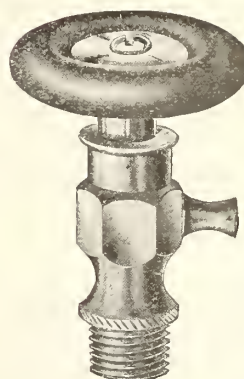
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SATISFACTION



WOLVERINE

LIMITED

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It Pays to have Wolverine articles on hand for instant use.
ORDER NOW

BEAVER BRAND Porcelain Enamel Ware

—Your Guarantee of Quality—

Beaver Brand Enamelware by its ability to meet the highest demands for service under all conditions, has established itself in the confidence of the public to such an extent that each month witnesses an ever-increasing demand for products of Beaver manufacture.

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Atmospheric Steam Heating Systems

Give a noiseless perfect circulation, without the use of air vents or traps on radiators.

No Vacuum Pumps are used. Consequently it saves fuel and costs for maintenance.

Farrfhern Heating will make the work of Contractors more profitable.

It is for buildings of every type and size.

Let us co-operate with you on the next heating prospect. The more difficult it may be, the better we will like it.

Director of Sales

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The Martin Portable Vise Stand

light in weight—
only fifty pounds

Can be carried anywhere without inconvenience.

Put up in two seconds; no bolts, screws or fastenings needed.

Use the Martin Portable Vise Stand where pipe or conduit must be bent, cut or threaded.

10 days free trial.

If your jobber can't supply you—write us.

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Tapped Closet Bend

Easier to attach
More permanent
Cost less



WROUGHT PIPE



Suitable for the approaching period of building activity, road construction, etc. This is a line of great importance in making successful, profitable contracts. Our C. T. Brand of Wrought Pipe has been

THOROUGHLY INSPECTED

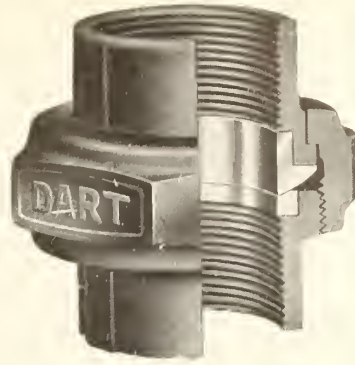
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Ask your Jobber for C. T. Brand Wrought Pipe

Canadian Tube and Steel Products Co., Ltd.

Operating Canadian Tube and Iron Co., Limited
Works at Lachine Canal, Montreal

Dart Unions



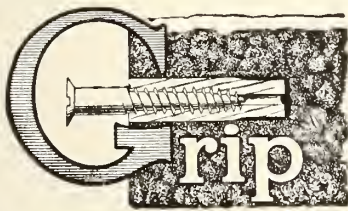
Really Troubleproof and Economical

When figuring on your next job
give Dart Union a trial and
you'll say you've connected up
with a real time and money
saver.

*The Bronze Face and Seat
prevent deterioration and
loosening up in service.*

Manufactured by Dart Union Co., Limited, Toronto, Canada

Expansion means



Why did the Thos. J. Dyer Co. use Rawlplugs?

Because the Thos. J. Dyer Co., after fifteen years' experience with other plugs, found Rawlplugs the only really satisfactory type of screw anchor. Rawlplugs did not chip the marble or plaster; they held the fixtures securely and were more economical. This is why Rawlplugs were used!

All the bathroom and sanitary fixtures in the Mount Royal Hotel are secured with Rawlplugs!

Rawlplugs proved satisfactory in the construction of Canada's greatest hotel. They are the most satisfactory plug for attaching your Bathroom and Sanitary Fixtures too, and will save you money.

Write us for price list and samples so that you can use Rawlplugs on your next contract.

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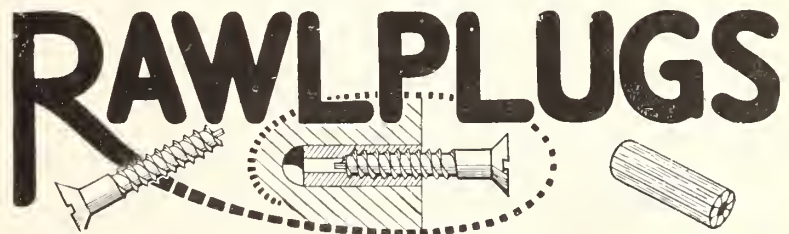
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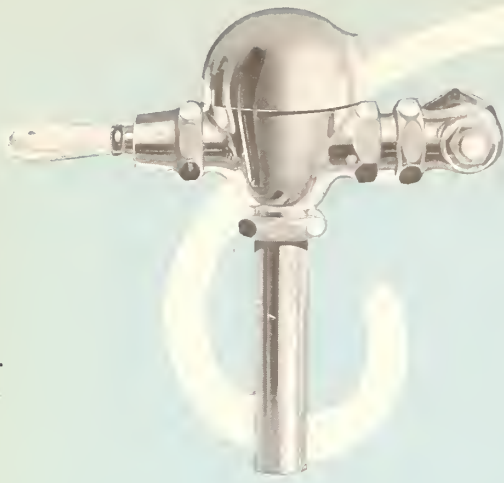
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New and Better

The Teck Flush Valve

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Without shutting off the water it can be adjusted for any length of flush.

In case dirt lodges in by-pass the removal of two screws permits instant cleansing—you don't have to pull down the whole valve.

The devising and manufacturing of this newer, better valve is but added evidence of this company's leadership in its chosen field.

Your jobber sells it.

Galt Brass Company Limited

Galt :: Ontario



Sanitary Engineer

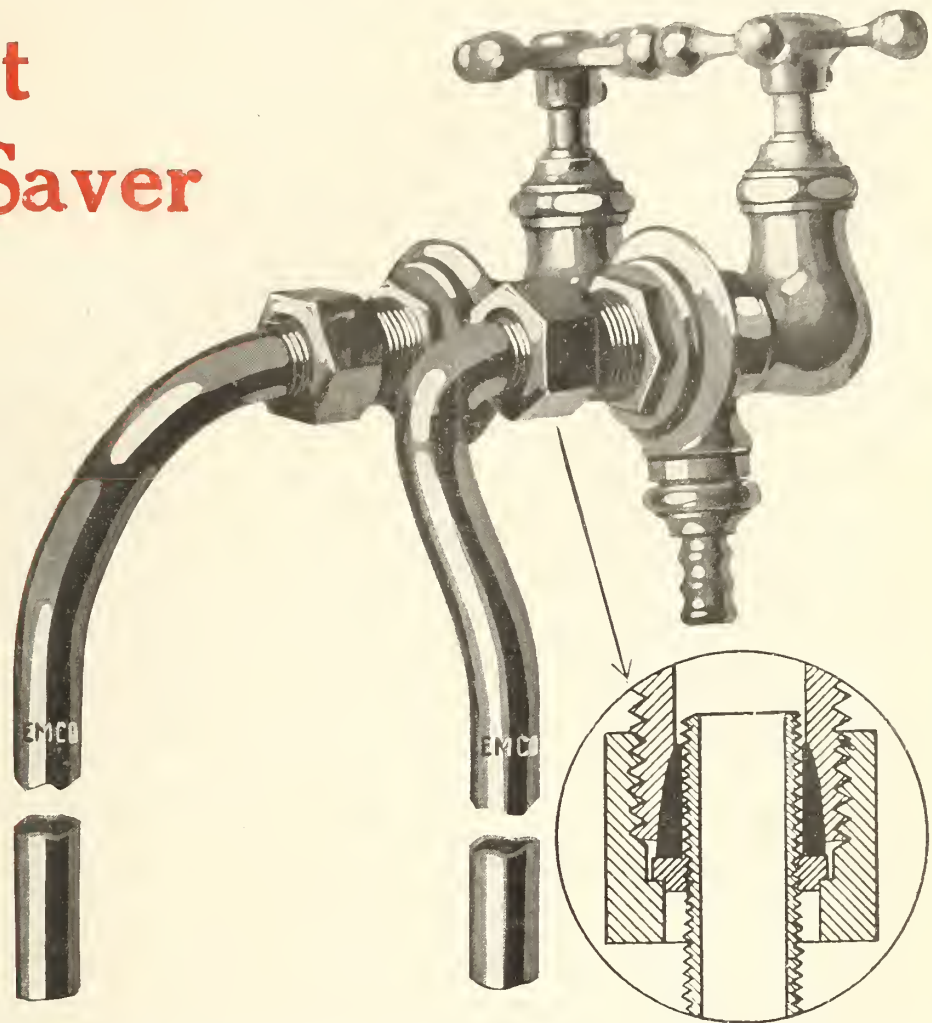
Plumber and Steamfitter of Canada

Vol. XVII.

PUBLICATION OFFICE, TORONTO, APRIL 1, 1923

No. 7

A Great Labor Saver



The "Emco" A-967 Adjustable Bath Supply is a time and labor-saving fixture on bath installations. Only one joint is required at the floor and one at the cock. A cone rubber washer makes the adjustable joint absolutely water-tight.

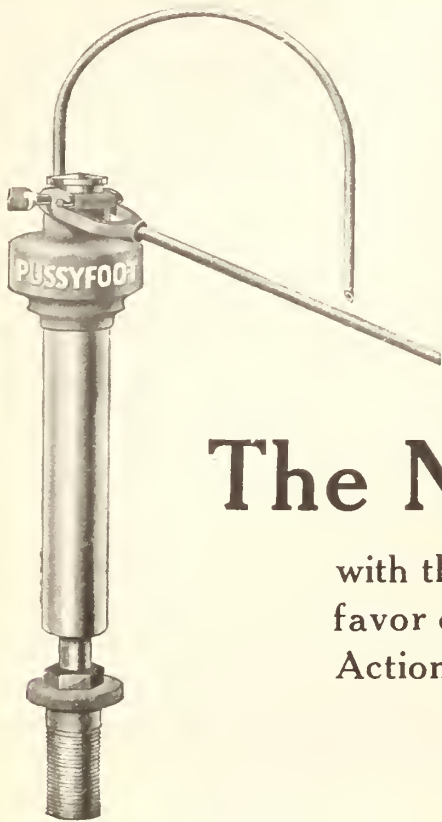
The adjustable joint saves trouble where the "roughing in" is not perfect. Use this "Emco" fixture and note the improvement in your installations.

Sold by leading jobbers

The above diagram shows how the joint is adjustable and how it is held steadfast in position by the screw collar. There is no possible chance of the supply pipe slipping out.

Empire Brass Mfg. Company Limited

LONDON AND TORONTO, CANADA



“PUSSYFOOT”

Stands out prominently as superior to all other

Closet Tanks

The New Patent Ballcock

with the name cast on the large Chamber finds favor everywhere because of its Silence, Rapid Action and Simple Mechanism.

The capacity of the “Pussyfoot” Tank insures strong, efficient flush.

It is manufactured from carefully selected material of the highest grade and finished in

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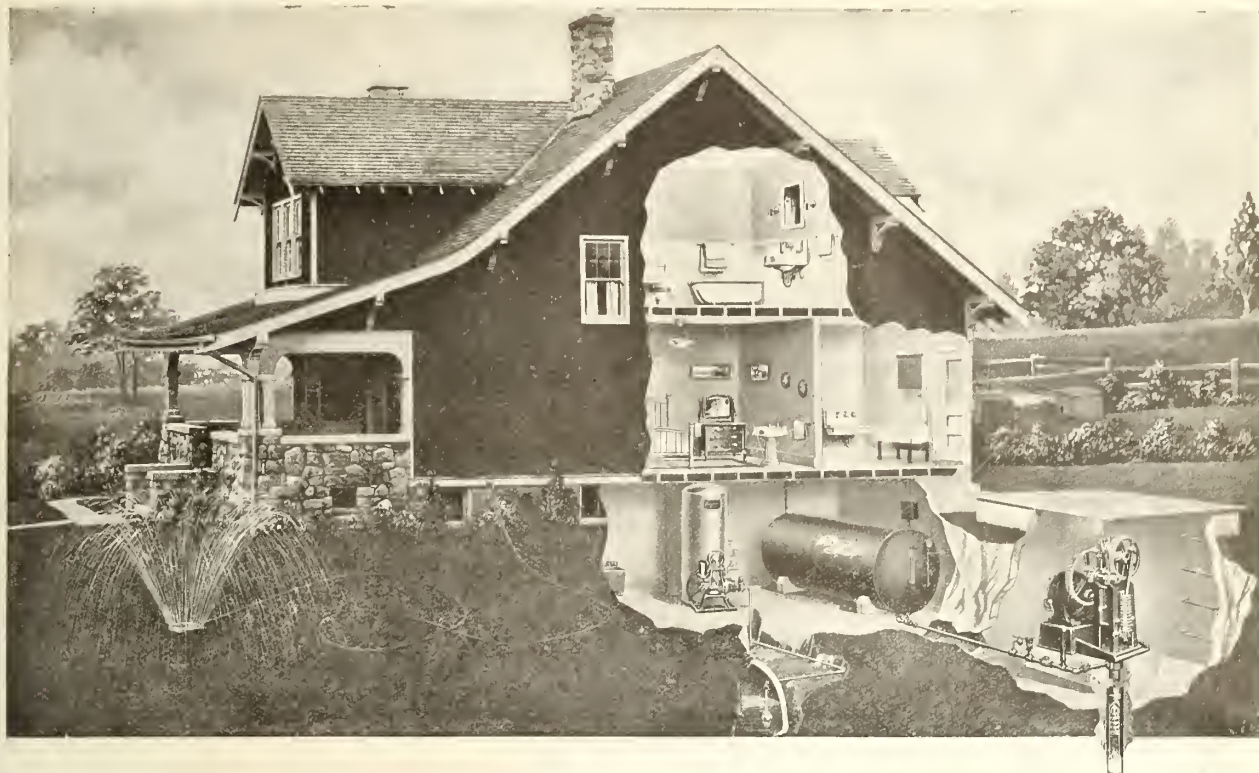
Every part of every tank thoroughly tested before leaving our plant.

Specify “Pussyfoot” to your jobber.



THE CANADA METAL COMPANY
LIMITED

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To-day a Greater Sale than Ever for "DAYTON" Water Systems

With the new "DAYTON" Sales Plan that stimulates business without expense on your part—

With a countryside awake as never before to the value of running water—

To-day you can do some mighty profitable business in installing "DAYTON" Water Systems.

Should it happen that you have not heretofore handled water supply systems and don't know how various makes differ, write to-day for our attractive booklet that tells all about it.

When mailing it, we will enclose particulars of our "different" Sales Plan.

Use the coupon to-day.

T. G. GRIFFITH & COMPANY

Manufacturers and Sanitary Engineers.

165 King St. E. - Toronto, Ont.

Distributors in Ontario for

THE DAYTON PUMP & MANUFACTURING CO.

DAYTON, OHIO, U.S.A.

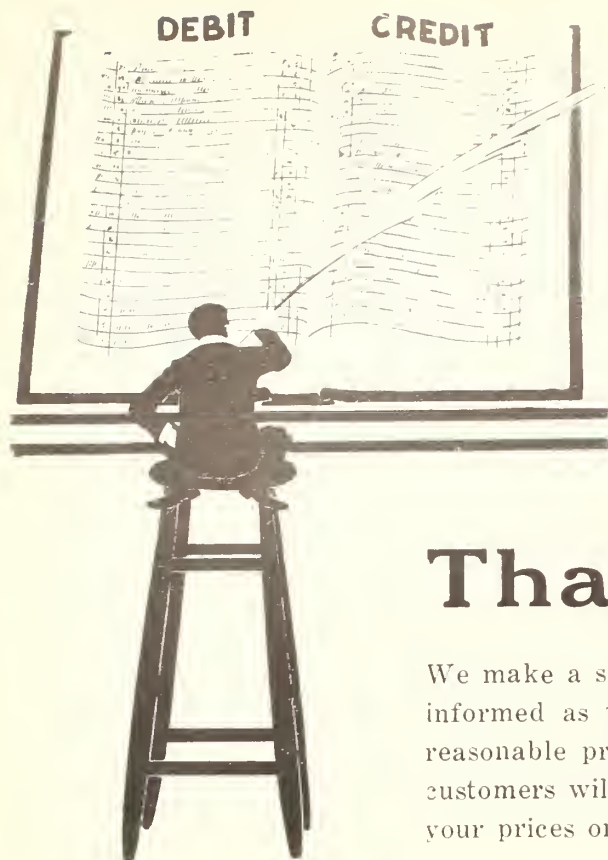


It isn't a "DAYTON" Without
This Trademark.

COUPON
Send me the "DAYTON" Water System catalog and
details of the "DAYTON" Selling plan.
Name
Street
Town
Province

Dayton Pumps

Make the water do the running



How Much Shall I Charge?

The success of your business depends on this vital matter. If your prices are too high you court trouble—if they are too low you risk losing money. It should not be a case of guesswork. Your charges should be made on a business-like basis.

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We make a specialty of watching the markets and keeping the trade informed as to what prices they should charge in order to make a reasonable profit. Our prices will stand close investigation and your customers will have confidence in you when they know that you base your prices on our service.

Never Mind Your Competitor

By adopting our pricing system you **may not** get all the business but what you **do get will produce a profit** and that's what you are in business for. If your competitor is foolish enough to do work at cost let him do so but don't be foolish enough to try and meet him. The only successful concerns to-day in the Plumbing and Heating business are those who ignore cut-throat competition.

**Spend
3 Cents**



**Get
This**

CUT OUT AND MAIL THIS

Henderson Business Service, Ltd.,
Box 123, Brantford.

Send me your booklet, Profit Insurance, and tell me something about your pricing system.

Name.....

Address.....

No obligation whatever.

Henderson Business Service, Limited

Specialists

Farmers Building, Box 123, Brantford, Canada



**The
ANTHES
SYPHON
is the
HEART
of the
DISPOSAL
SYSTEM**

Anthes Soil Pipe

**Use
It
On
Every
Job**

—And there will be plenty of plumbing jobs this spring for the aggressive merchant plumber.

In every neighborhood there are scores of live prospects for complete water and disposal installations.

Each such installation brings also assured sales of water heaters, bath tubs, lavatories, toilet bowls, sinks, etc. There is more real honest-to-goodness plumbing business lying around loose and careless in rural districts than in any other sales field in Canada. Get after this tremendously profitable business this spring—now.

Anthes Foundry

Limited

Toronto and Winnipeg

Manufacturers of
Cast Iron Soil Pipe and Fittings



Perfection

Automatic Air Valves



You might as well try to operate a steam engine without a boiler as to expect the peak of efficiency from heating systems equipped with impractical air valves.

Perfection Automatic Air Valves were designed to give the acme of satisfactory performance—every installation proves that their design is right.

No matter the peculiarities of your system, there is a "Perfection" that will meet them exactly.

Let us give you the facts concerning the full line.

The Beaton & Cadwell Mfg. Co.

Pioneers and Largest Plate Manufacturers in the Country
 NEW BRITAIN CONNECTICUT
 New York Office and Store 234 Water Street

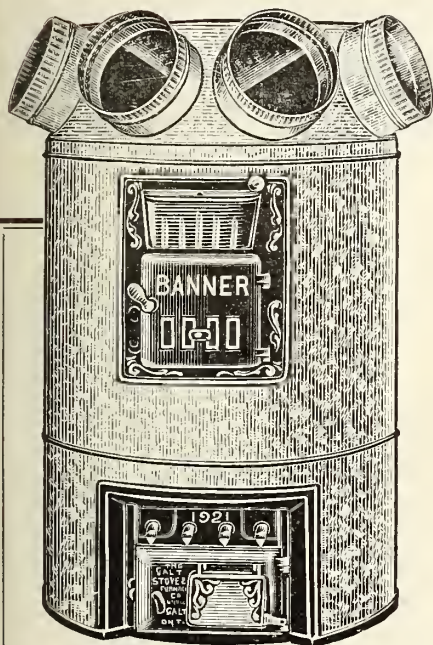


Wellby Special No. 5

Farmers Will Buy More Furnaces in 1923

Every stove-heated farm house in your district is a real, live legitimate prospect for a Banner Furnace.

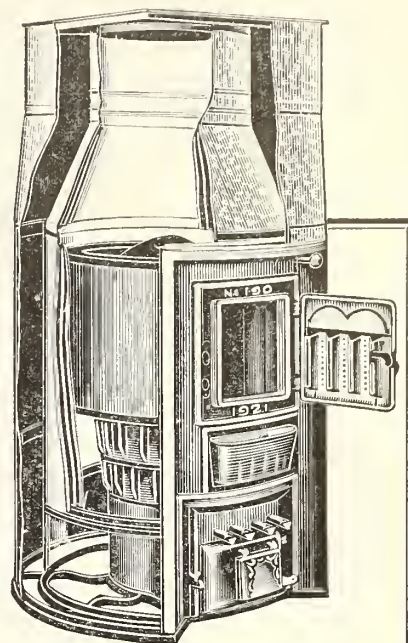
Farmers everywhere are getting rid of their antiquated heating equipment and installing a Banner; the Banner Pipeless for the average home; the Banner Pipe furnace for large, rambling farm houses.



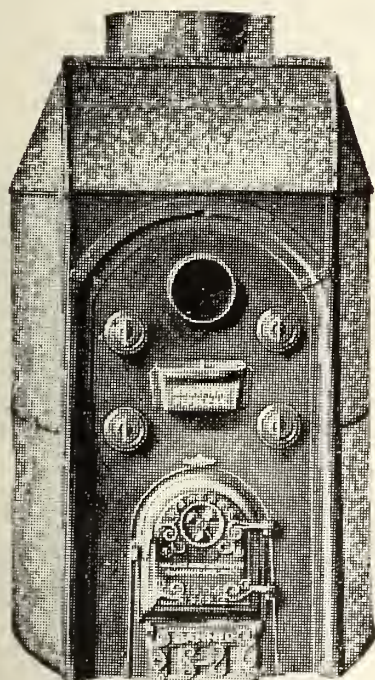
The Banner Furnace

Both furnaces have a sturdy, cast iron combustion chamber, four individual shaker grate bars, full rated capacity, and roomy ash pit.

The Banner can be installed for one quarter the price of a steam or hot water job and once installed it "stays put"; you waste none of your profits in service calls. It is one of the most profitable of all furnaces to handle.



Banner Pipeless Furnace



Banner Pipeless Wood Furnace

The Banner Pipeless Wood Furnace shown on the left takes a stick from 2 to 4 $\frac{3}{4}$ ft. long, and the fire door is large enough to accommodate great, rough chunks of woods

The furnace is designed for use in districts where wood is the only fuel used.

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The Galt Stove & Furnace Co.

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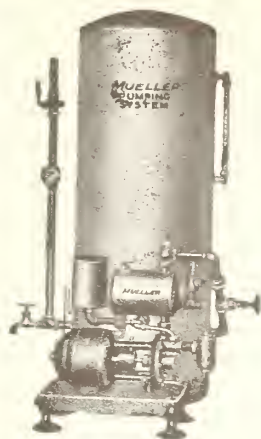


Fig. 2000

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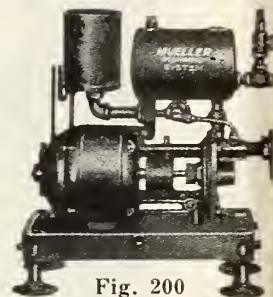


Fig. 200

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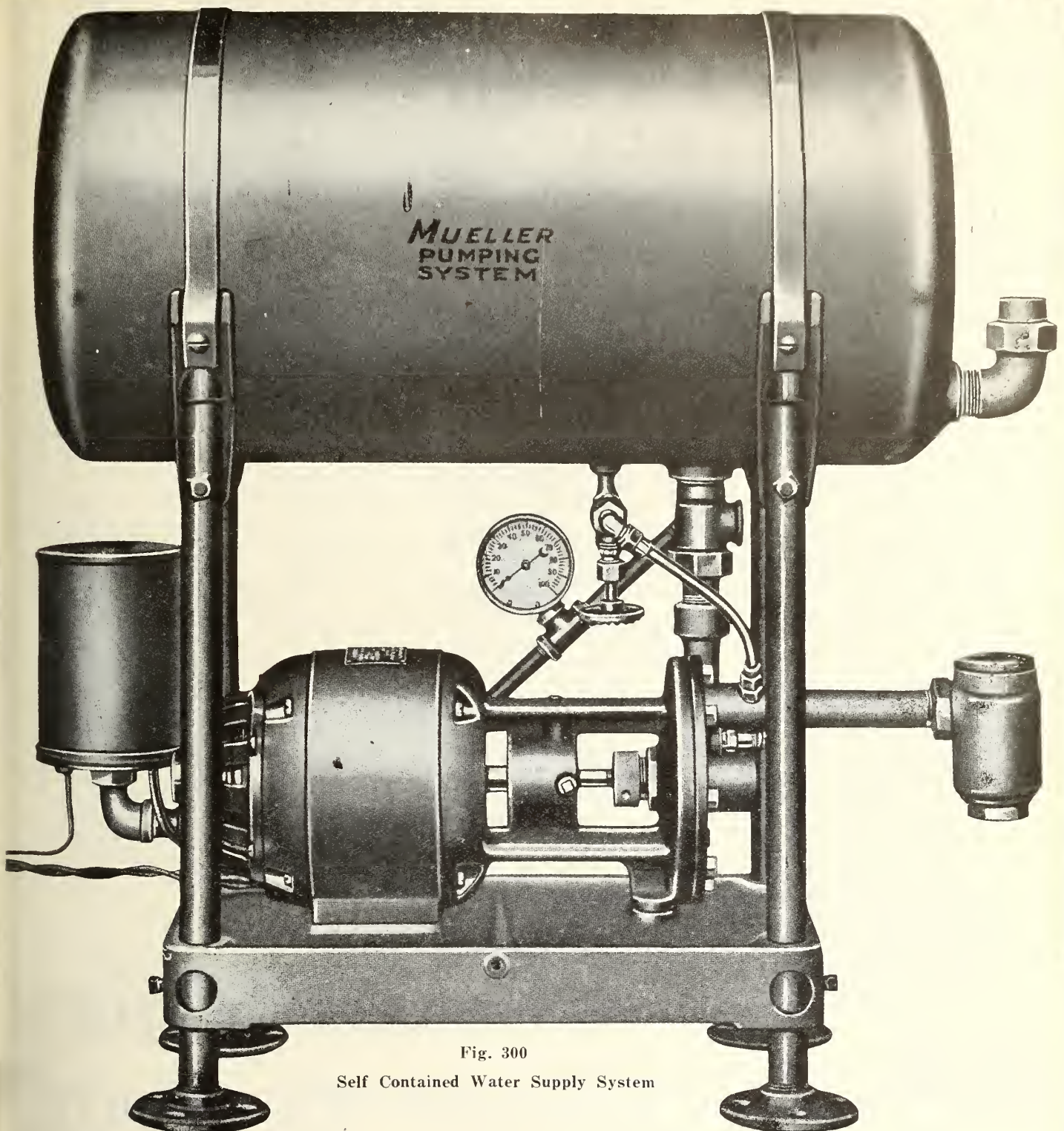


Fig. 300

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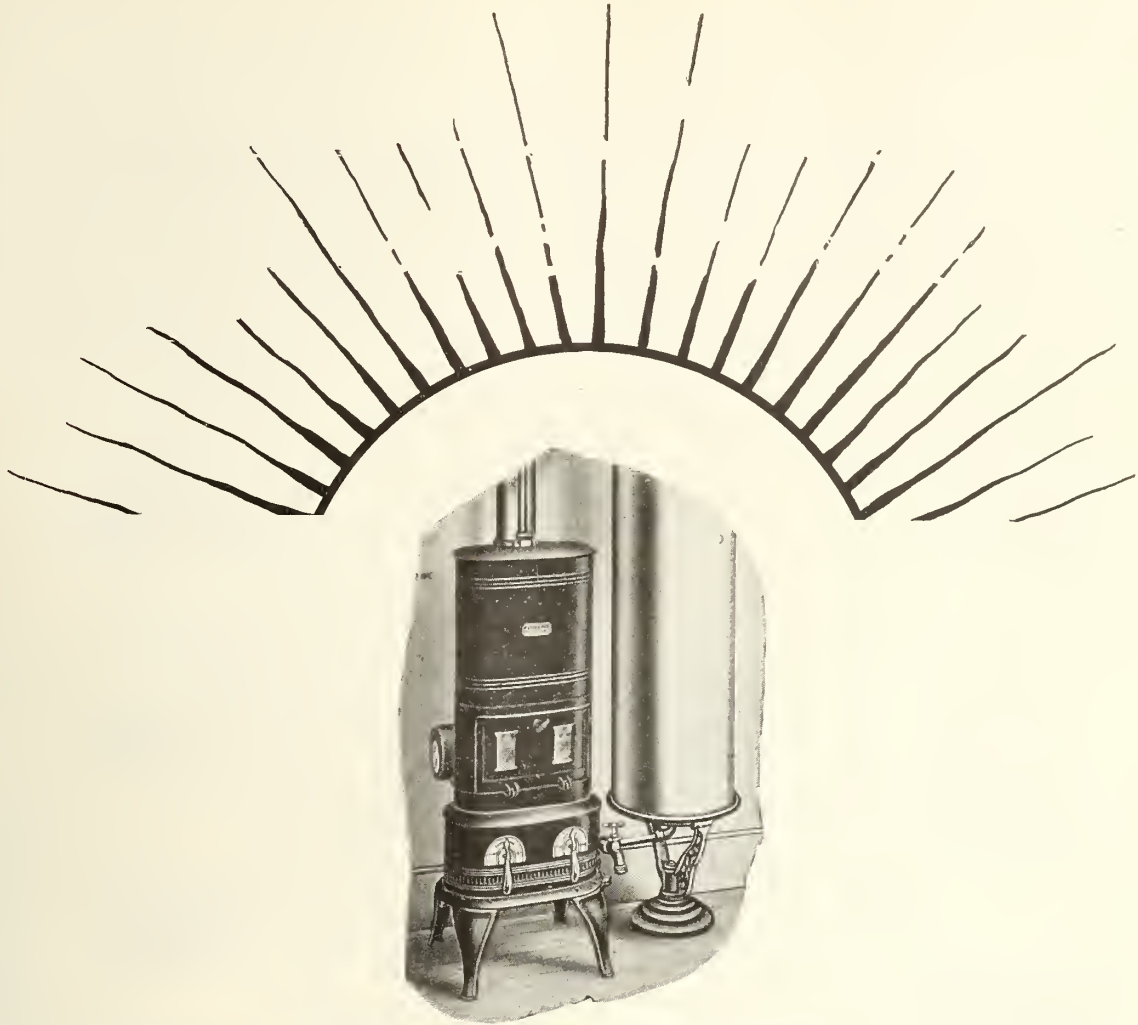
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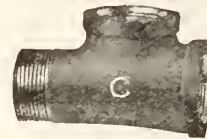
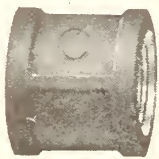
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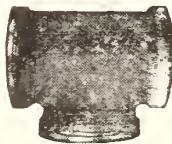


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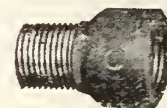
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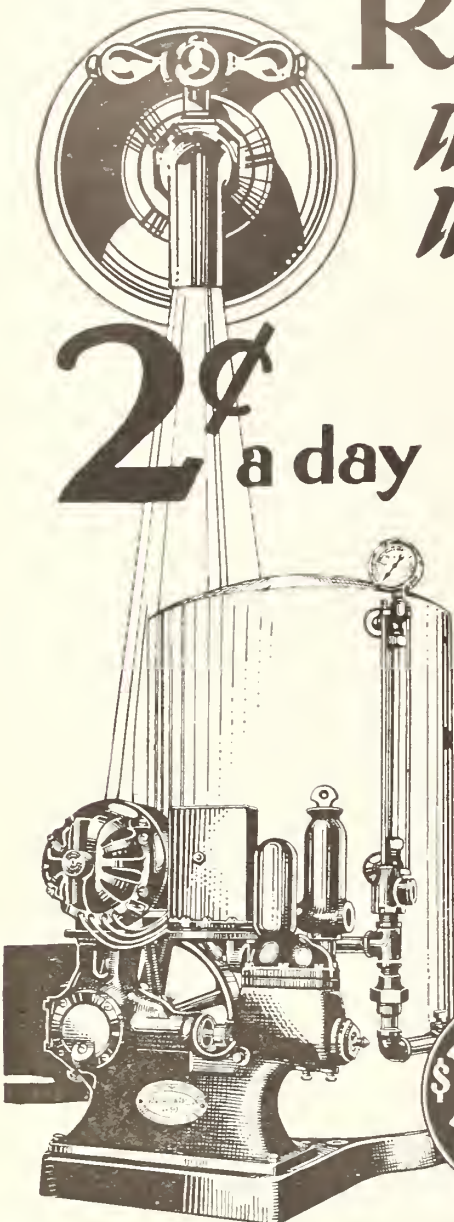
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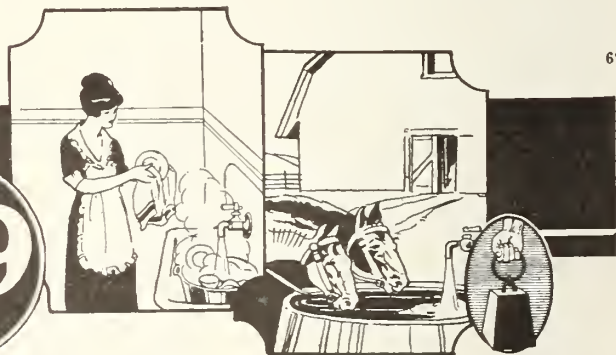
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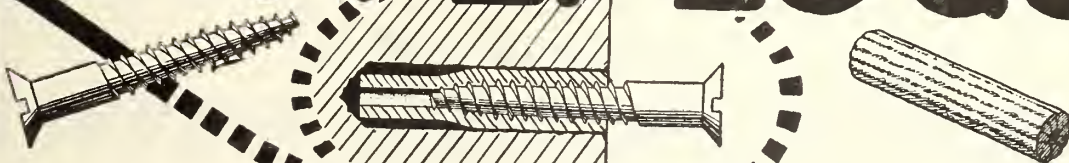
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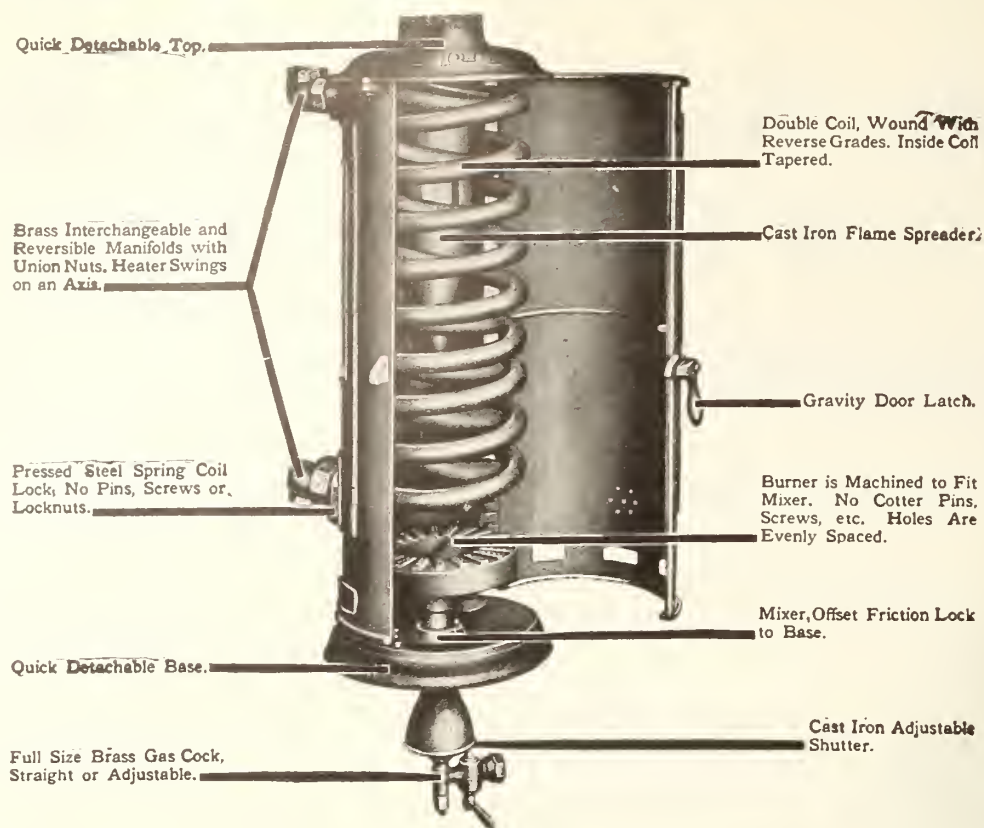
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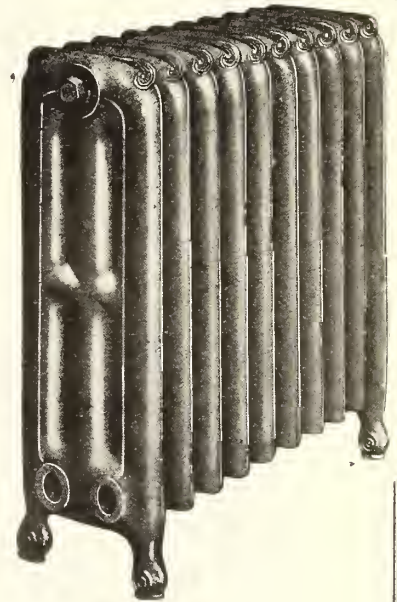
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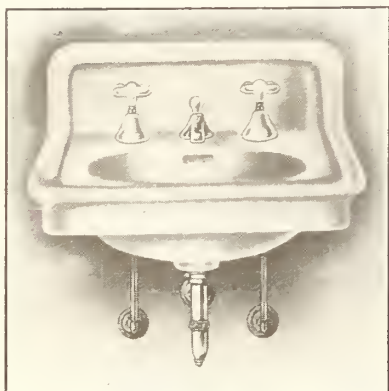
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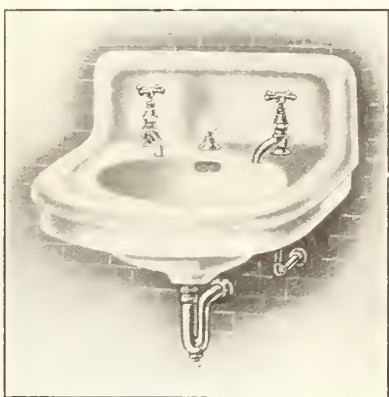
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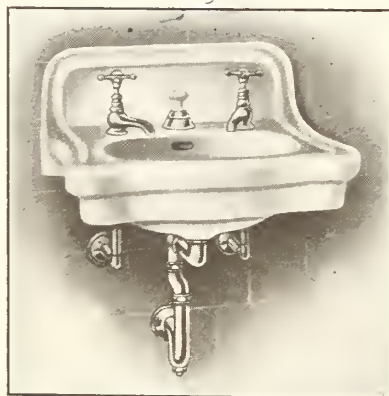


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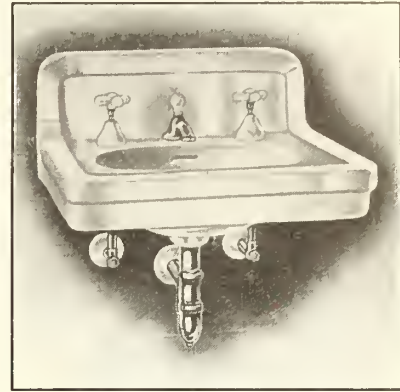
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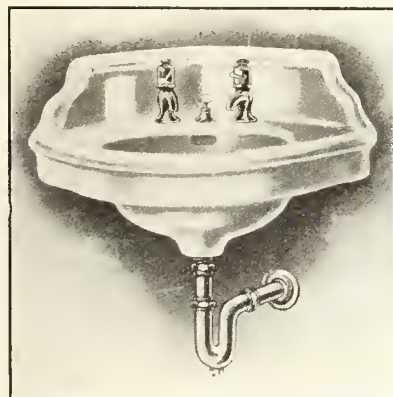
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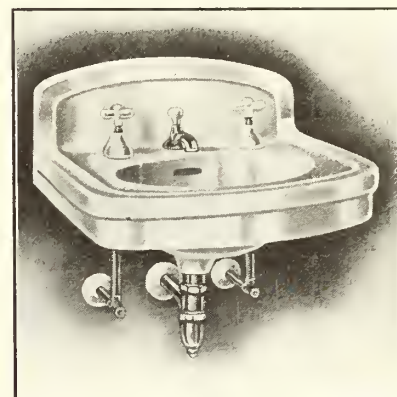
The "MacPherson" and the "MacRae" are both of the popular hall type of lavatory, for installation in the narrow wash-room. In the 18 x 20 size a choice of six designs are shown any of which are suitable for the private bath-room of any size and are also most desirable for school or factory installation.



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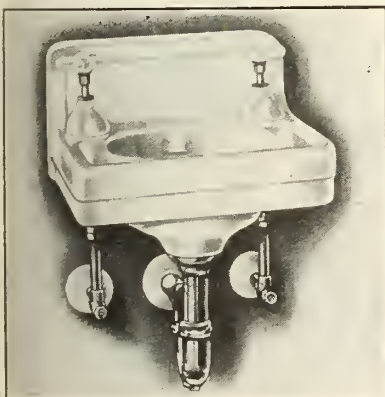
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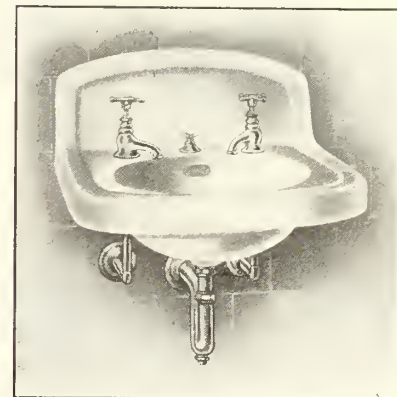
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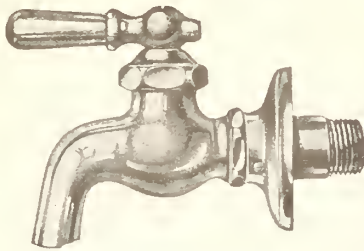


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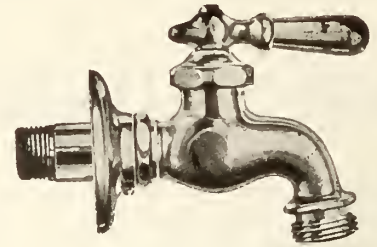
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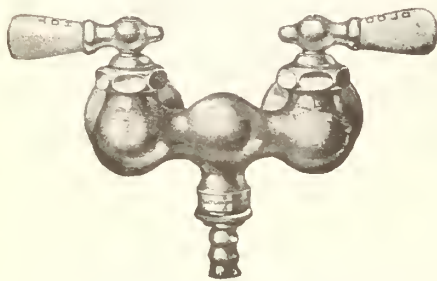
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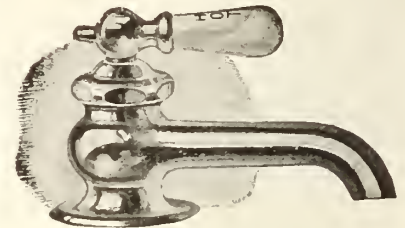
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A-1002—Sink Bibb



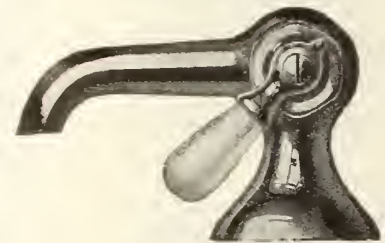
A-3200—Bath Cock



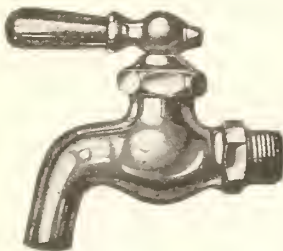
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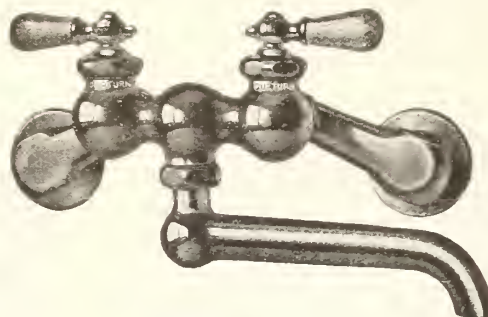
A-3500—Bath Cock



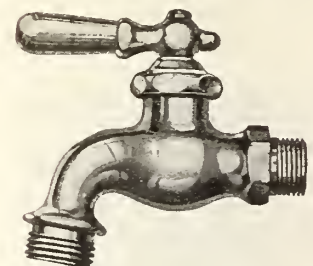
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SANITARY ENGINEER

PLUMBER AND STEAMFITTER OF CANADA

ESTABLISHED 1907

PUBLISHED TWICE MONTHLY

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No. 7

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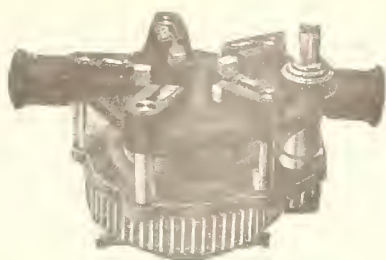
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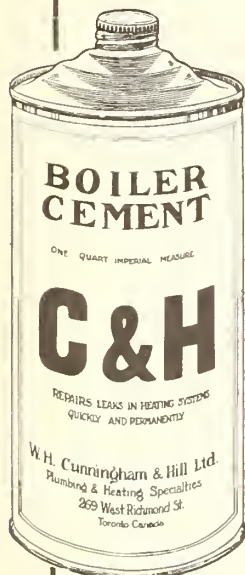
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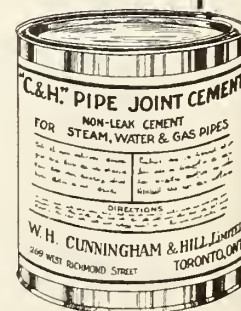
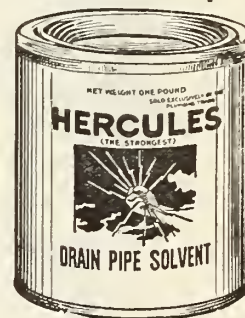
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VOL. XVII.

TORONTO, APRIL 1, 1923

No. 7

"Prospective Plumbing Apprentices Must Know What the Prospects Are for Them"

Ex-President George Broomfield Takes a Fling at the Adolescent Act—Asks What the Plumbing Trade Has to Offer Apprentices—Plumbing Craft Are Being Raised to Higher Standards

Report of Convention of the Association of Plumbing and Drainage Inspectors of Ontario, held in London, Ont., by Special Representative

A GREAT many of the current problems in connection with plumbing and drainage were discussed at the fourth annual convention of the Association of Plumbing and Drainage Inspectors of Ontario, as held in the City Council chamber at London, Ont., for two days. There was a representative attendance of inspectors from various parts of the province and an enjoyable and helpful convention was the result. This association has been formed with the idea of suggesting plumbing regulations to govern the design and installation of plumbing systems, to encourage the adoption of such regulations, and to advance the standards of plumbing, drainage and hygiene by reading and discussion of papers, and interchange of practical and theoretical knowledge and experience, and to encourage and promote drainage inspectors after an examination as to qualifications, to be Plumbing and Drainage inspectors.

The election of officers resulted in the return for another year of the officers of last year. The delegates expressed utmost appreciation of the work of these officers during the year. These officers are as follows: President, F. C. Palmer, Oshawa, Ont.; vice-president, A. G. Metherall, Peterboro; secretary, W. H. Meadows, Toronto.

Next Convention in Toronto

The city of Toronto was decided upon as the place in which next year's convention will be held.

An address which dealt clearly and concisely with the apprenticeship problem in the plumbing industry was given by George Broomfield, ex-president of the association. Considerable favorable comment was heard concerning the outline of the situation as given by Mr. Broomfield concerning the reasons for the scarcity of apprentices, showing that boys were being educated to the point where they will not learn the plumbing or other such trades.

"When the boy is kept at school until he is 18 years old he does not want to go out and learn a trade," said Mr. Broomfield. "Mother looks at the lad and says 'I do not want my boy to go to work where he will dirty his hands. I want him to have a white-collared job. I will make a preacher out of him.' In many cases he would serve his risen Lord better digging post holes or planting potatoes than in pounding the pulpit."

Continuing Mr. Broomfield asked what the plumbing trade had to offer apprentices. In the matter of wages the boy could go into an automobile factory and earn twice or three times as much as he could as a plumber's apprentice.

"You have to show the boy that there

is something ahead of him in the trade." Mr. Broomfield concluded. "If we can't show him that he won't have to go home to heaven branded as an assisted immigrant with the country's stamp on the coffin we cannot expect to get apprentices."

B. Kirk of Toronto, recalled the days of his apprenticeship, when he worked for \$2 per week and he received \$6 when out of his time.

Use of Bicycles

Delegate McPherson of St. Catharines started some discussion when he stated that one reason for the high price of plumbing in his city was the action of the union in refusing to allow the members to use their own motor cycles or bicycles during working hours. This subject came in for discussion two or three times during the convention, Mr. McPherson pointing out that he did not wish to start any controversy but merely wanted to discover whether these same conditions obtained in other municipalities. It was the consensus of opinion that in none of the other municipalities does the union take any such steps. On the whole the delegates were inclined to the opinion that this question was one for the unions and the employers to settle. Secretary Meadows of Toronto pointed out that as inspectors they were more interested in having good work done than by attempting to interfere with the duties of other bodies.

R. G. Leaman of Toronto gave an address entitled "The inspector, the public, the health departments and the plumbers and manufacturers," as reproduced in full in this issue. He urged the necessity of educating the public to the danger of inferior plumbing installations.

Master Plumber and Plumber

Mr. Leaman prefaced his address with the following remarks concerning the status of the plumbing trade:

"The time is passing—it has well



F. C. Palmer

Sanitary inspector of Oshawa, Ont., re-elected president for 1923-24 of the Association of Plumbing and Drainage Inspectors of Ontario.

nigh passed—when your splendid calling is no longer to be jibed and joked at. You are going to be recognized as a craft that is a benefactor to mankind, that builds for comfort and sanitation, that has made possible to all humanity the God-given privilege of personal cleanliness, out of which grows a strong manhood and womanhood, improves the morale of the entire community, instills in every heart a sense of personal pride and brings out the natural glow and vigour in every human being who avails himself of the privileges your trade has made possible. The Bible says, 'The unclean cannot enter the Kingdom of Heaven,—meaning those unclean in mind.

"You have been the means to an end that science has never yet and never will accomplish. You have assisted and developed naturally with the means your creator placed at your disposal and not by artificial medicines or stimulants provided by man.

"Proud of your calling! Why, men, you can hold your heads high, you can look any man in the eye and say with pride, 'I am a plumber. You can't get along without me—I am an essential and co-ordinate part of your modern civilization. Without me you would retrograde to an unclean, heathenish mob, but with me, you progress and go higher in scale of civilization, honored and appreciated, a happy, strong, highly developed cog in nature's great scheme. When you can't, with pride, look a man in the eye

and talk to him like that, when you can't throw his cheap jibe back into his teeth and make him see the truth, then you fail to measure up to a proper appreciation of your high calling. Don't be modest about it. The argument is all on your side. Any man who belittles your trade is ignorant of its transcendent importance which falls like a benign blessing on mankind because of your knowledge and your skill in placing for his benefit in his own home the greatest gift that mankind enjoys.

"You have built better than you knew. But now you know, and it is about time you clipped the coupons and told the rest of the world to pay up—not with money alone, but with a proper respect for a calling which entitles you to regular commission in the ranks of benefactors of mankind, and a position in the world of commerce alongside Wanamaker, Field or any other so-called merchant prince. What did they ever do for humanity? They furnished the fine feathers that make fine birds, but if those birds did not feel the glow of vigor and pride which comes from a clean body they would not be ambitious for the fine feathers. Then, again admitting that without the clean body and the resultant personal pride they did want the fine feathers, who would want the birds after they plucked the feathers finding beneath the feathery covering, an unclean body?"

At the afternoon session of the first day Dr. Downham, M. O. H. for London,

read a paper on "Ventilation," in which he advanced some ideas which are quite opposite to the general opinion. He declared that the air in a room, even well filled with people, never contains sufficient carbonic acid gas to be injurious to the health of those occupying it. Nor is the amount of the oxygen sufficiently reduced to endanger health, providing the air is kept at a proper temperature, from 65 to 68 degrees, and at a proper humidity, about 65 per cent., and is kept in motion.

The visitors were the guests of the city at the DeLuxe Cafe for supper on the first day of the convention. Alderman Watt, as acting mayor, presided. He freely gave his opinions of plumbers in general and apprentices in particular. His opinions were given in a jocular mood and accepted accordingly. Some interesting addresses were also delivered by F. C. Palmer, C. H. Mitchell, Ald. Douglass, E. R. Seabrook, City Engineer Near, Rev. John Garbutt, George Broomfield and James C. Young, local plumbing inspector.

A very satisfactory condition of affairs was reported by the officers of the association. The treasurer reported a balance in hand of \$200, and the secretary dealt with the increase in membership which had taken place during the year and the increased interest taken by members in the work of the association as judged by the number of enquiries directed to him concerning problems arising in the work of inspectors.



Group of plumbing and drainage inspectors at the convention of the Ontario Association of Plumbing and Drainage Inspectors held in London, Ont., as reported herewith. Seated in the big chair in the centre is President F. C. Palmer, of Oshawa. Seated to the right of him is Secretary W. H. Meadows; seated to the left of him is G. Broomfield, Brantford, Ont., ex-president; standing behind is A. C. Metherall, Peterboro, vice-president of the association. Others are inspectors from various parts of Ontario.

Removes Plumbing Equipment Which is Not According to Existing By-Laws

Open Waste and Vent Pipes, Unused Fixtures, Vent Stacks Not Through the Roof, Steam Traps to Drains and Soil Pipe, Acid in Soil Pipes, etc., Some of Irregularities Found by Dept. of Industrial Hygiene and Housing

Address by E. J. K. NORRIS before Convention Association of Plumbing and Drain Inspectors of Ontario, London, Ont.

I WANT to try and interest you by bringing to your attention a few of the conditions found and dealt with by the Division of Industrial Hygiene and Housing of the Department of Public Health in Toronto.

The duties and personnel of the Division were explained in detail at our last meeting and you will remember there are two plumbing inspectors on this staff whose duties take them through the factories of Toronto and also to attend to complaints of citizens re nuisances, etc.

The factories of Toronto generally are in first class condition from a sanitary standpoint. The following remarks however, are in reference to some of those which were not up to standard but have since been made good.

Open Waste and Vent Pipes

The most glaring irregularity was the number of open waste and vent pipes found. Fixtures were removed and no attempt made to close and seal the open ends to prevent sewer air entering the building.

Unused Fixtures

In many factories plumbing fixtures were found that were not being used; some of these had the water on to the faucets, and others were shut off at stop cocks, with the result that traps were dry and admitting sewer air. Many of these factories had large lavatories containing several fixtures closed, as their staff of employees had become less. Under this heading it would be well to note that the average man is quite ignorant as to the use and duties of the various traps under fixtures. When they are told that it is necessary to flush these frequently in order to retain the seal, they are rather surprised. One factory was found where they made a very neat store room for food stuff in connection with their cafeteria, out of a lavatory containing two closets and a basin. The superintendent thought this arrangement satisfactory so long as the lavatory was not being used as a lavatory. When he was advised that his food was being kept in foul air he was horrified.

Some lavatories were found packed so full of stock that it was impossible to get near the fixtures and it took some explaining before the people would re-

move same in order to keep the traps sealed.

Lavatories Used by Both Sexes

There were very few under this heading and practically all have installed the necessary accommodation.

Plumbing Not According to By-law

There is considerable work in use at present of plumbing done by unscrupulous plumbers and handymen, practically

floors added and the vent stacks being left inside were found.

Steam Traps to Drain and Soil Pipe

Steam traps were found discharging into soil pipes. This usually takes some explaining in order to get the defects rectified. However, when the lead joints which are forced out due to the expansion and contraction are shown to the man who pays the plumber, he usually realizes that it is false economy.

Acid Into Soil Pipes

Not one place was found where acid had destroyed pipes. Most all places using acid have tile pipe.

Overcrowded Lavatory Accommodation

Very few cases of this and all made good.

Acid Fumes—Smoke—Dust, Etc.

Practically all the factories have dangerous dust and fumes controlled. Some have excellent systems, others not very elaborate systems, but nevertheless effective. Many instances were found where the employees were not taking advantage of the protection provided by removing the hoods and guards from machines, and neglecting to replace them.

Ventilation and Heating

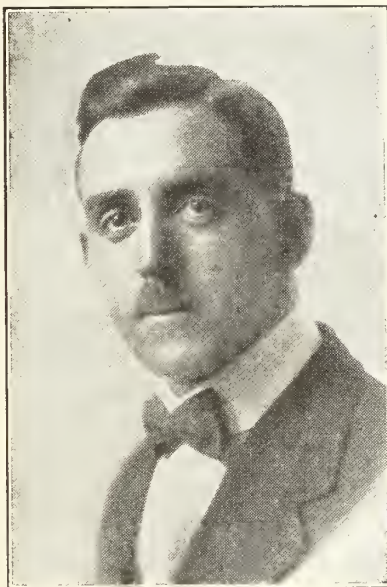
There are very few factories found now with fault in ventilation and heating.

Light

A few isolated cases were found where the natural light could be improved, but unquestionably there is room for improvement in many lavatory lights. Lavatories that are dark are usually dirty and if they depend on electric light in many cases the bulb is burned out, or switch defective. Painting the corners of lavatories and stairs white is an excellent scheme; factories have been wonderfully improved by doing this.

Lunch and Rest Rooms

All of the larger industries have these and are usually well patronized. There are several very elaborate such rooms in the western district. One firm has a large Welfare building almost complete which should be the finest in the city.



A. G. METHERALL

Sanitary inspector of Peterboro, Ont., re-elected vice-president for 1923-24 of the Association of Plumbing and Drain Inspectors of Ontario.

all of this has been in use for years, but nevertheless there was quite a lot of it removed and installed satisfactorily.

Traps not vented—black wrought iron waste pipes—traps constructed of black iron fittings—fixtures wasting into fixtures—fixtures wasting into rain water pipes—waste pipes discharging through walls. No local vents. No windows to outside air—pipes repaired with taps, etc. Breather pipes inside premises—closet bowls loose at flange. These are some of the defects made good.

A few instances of buildings having

First Aid

Scarcely a factory can be found that has no first aid material. Most of them have a complete kit.

Housing

Under this heading we get a great variety of work. If a citizen has a complaint to register against a factory for making unnecessary noise, dust, smoke, etc., this division handles it for him.

One complaint came in from a hotel claiming sewer gas was permeating the premises. The guests were leaving hurriedly. After inspection it was found that a radio fan had fitted a flag staff into the top of the soil pipe stack to string his wires on. The result was that the traps were syphoning.

Gas Fired Appliances

This is a subject that requires more attention. Gas appliances are being installed in factories and houses in a very unworkmanlike manner. Of course we all know the class of mechanic that is usually sent to do gas fitting. But if a poor mechanic does install work a man who understands the conditions thoroughly should inspect his work.

Several fatalities have occurred from gas fired heaters; these appliances at

times give off a deadly gas and in many instances they are not equipped with a fume pipe.

At present this division is dealing with a case where there are eighteen apartments, all of which have a domestic boiler and heater combined. This is a new building and there is no provision made to carry off fumes from these heaters of gas ranges. Up to date the owner has spent considerable money installing galvanized iron ducts to the outside of the building, and after spending money and disfiguring the property, his job is not satisfactory, as there is a back draft at times that extinguishes the gas and is liable to create an explosion. These fumes should be amply arranged for, in new buildings in figuring size of chimney. Carrying ducts through and up the outside wall is not satisfactory as the life of the pipe is very short and the replacement of same, year after year, would be enormous and consequently would be neglected.

If a man is sent to install a gas fitted appliance, he should endeavour to install same as close as possible to a chimney and not consider that his work is complete until the fumes pipe is installed. Occasionally the owner will tell the gas fitter, "Oh, don't bother about the fume pipe, I will do that." Well, some

times it is done, but in most cases it is not.

Now this line of work has not been considered part of a plumbing inspector's duties, but in my opinion it is, because in most cases the man called to do work comes from a plumbing shop. The inspector should insist on all fumes being controlled from these gas fired appliances and there are several such as linotype and monotype printing machines, clothes presses, small high pressure boilers and various styles of tank heaters.

We occasionally run across the result of faulty work installed by plumbers when putting domestic coils in furnaces. They should make a neat hole for their pipe where it passes through the inner drum, so that coal gas can't pass into the hot air pipes.

Carbon monoxide is a gas due to incomplete combustion. This gas, like carbon dioxide, has neither taste nor smell and is very deadly in its effect. Whenever you find coal gas or illuminated gas, it is a sure and certain indication that there is carbon monoxide and if allowed to continue, death will undoubtedly result. Hence it is of vital importance that efficient means be provided to prevent this deadly gas escaping, whether in dwellings or work places and likely to be inhaled by human beings.

Would Make Master Plumber Responsible for Complete Sanitary Installation

Drains Laid on Swampy or Made Ground Should Have Solid Bed of Concrete—Make Owners Responsible for Final Smoke Test—Make Drain Contractors Responsible for Plans Filed for Tiled Drains—Condemn Woodwork on Sinks

Address by R. G. LEAMAN, Sanitary Inspector, Toronto, before Convention Association of Plumbing and Drain Inspectors of Ontario, London, Ont.

"I WILL deal with relations which exist between the master plumber, plumber, drainman and the inspector and whether we can improve on these conditions so as to give the feeling that when an inspector goes on the job that he is there to protect the public, master plumber, plumber and drainman.

In trying to bring my point of view before this convention I have brought with me a chart; before I start on this chart I may say that these are the views of some of the master plumbers and drainmen which I have gathered during the inspections.

Link No. 1. Health

Health is a factor in which the public are very much interested. It not only pertains to our line of work but it goes into the home; if people understand what this great link means it will be a very short time before they will find that their sanitary conditions are not what they ought to be. That is

where this great link connects with No. 9. You will find that they will get in touch with Link No. 4, the master plumber, and this is where No. 9 has a great bearing. Health is the one great link which we inspectors are so closely associated with.

Link No. 2

The link is the public who are striving to keep healthy. Where there is health there is always happiness.

Link No. 3. The Medical Health Department With its Hygienic Plumbing and Drainage Divisions

There are many people who still think the inspections are fads. I heard a minister once say, "As you sow so shall you reap," and it is true. Some day when they find their health impaired by evading their health acts and regulations, some people will know that they have reaped what they have sown.

Links No. 4, 5, 6, 7

No. 4, the Master Plumber; No. 5, The Journeyman Plumber; No. 6, the Drain-er; No. 7, the Manufacturer.

These are closely linked together, for together they manufacture and install the mechanical appliances that allow us to breathe fresh air, drink pure water and dwell in healthy surroundings. There is no room used oftener than a bathroom or a kitchen; the laundry when it is used is generally used for the day. Economy should be practised elsewhere but not on the sanitary equipment of a home.

Link No. 8. The Price of the Installations

In making inquiries during my inspections I have found that there are many grievances and suggestions. I will deal with the grievances now as I have made it a separate link.

Much of the reasons for unpleasant

relationship between the master plumber, drainer and inspector is claimed to be that they cannot get the proper price for their installations. But, you will ask, why should they have unpleasant feelings toward the inspector? The reason is, that the inspector has his duties to perform and in the daily routine of his inspections the following is found: the vents are low or they are falling the wrong way; the trap is drawn and its seal is broken; the lead waste is not supported; the stack is not properly supported, or the water pipe is trapped; a fitting or pipe is defective and it must be taken out; a W. C. is installed in the cellar with no direct ventilation to it; or the laundry tubs or W. C. are installed without vents. The drainer's troubles are similar in his line of work.

Link No. 3 has its duties to perform, the chain is as strong as its weakest link and the public cannot afford to have any weak links. The master plumber and drainer claim that the reason there are ill feelings toward the inspector is on account of Link No. 8, (the price of the installation), that they cannot take the proper time to see that all faults are made right before the inspection is made. After it is made good feeling prevails among all the links because we all realize that the public must not suffer for conditions that exist amongst the trade.

We now come to a very important link in the chain we are endeavouring to build.

Link No. 9. Education

If the public could be made to understand why vents and traps are necessary, why they must not run rain water leaders into fresh inlets, why they should not break holes in drains and soil pipes for refrigerator wastes and other fixtures, why they cannot make a bathroom out of a room with no windows or where direct air or light cannot get into the room; why a stack must be three ft. above a window or fifteen ft. away from a window, there would be much less misunderstanding.

Link No. 10. Stands for Co-operation

The chain as a whole should co-operate to give the public the best installations and materials that can be had. The following are recommendations which I have gathered from the trade:

Clause No. 1

In extreme cold weather water tests be discontinued and a smoke test be applied on all roughing work. That the master plumber supply machine approved by the chief inspector and all necessary equipment for same and that a time between two dates be made by chief inspector of the municipality.

Clause No. 2

To define responsibility of the plumber in regard to the plumbing and drainage installed by the different contractors.

They suggest that it be made compulsory for a test fitting at the foot of every stack and would make the connection between tile and iron the drainman's work. They further suggest and would recommend in the best interests of sanitation, that plumbing and drainage should come under the master plumber, making one man or firm responsible through the office of the Medical Health Department for the complete sanitary installation. It is also recommended that when all drains are to be laid on made or swampy ground that the same be laid



G. BROOMFIELD

Brantford, Ont., ex-president of the Association of Plumbing and Drain Inspectors of Ontario, who gave some interesting comments on the apprenticeship problem.

on a solid bed of concrete. They go further and say that all drains should be iron.

Clause No. 3

That patent breather cap be dispensed with and return bend or more suitable fitting attached to fresh air inlet.

Clause No. 4

They recommend and suggest that owners be notified through the press or the office of the Medical Health Department that they are responsible for the final inspection and in all cases smoke-tests must be supplied in so many days. If the owner knew that he was responsible he would hold final payment until he knew same was passed by the Health Office. Should Clause No. 2 not be dealt with they recommend that upon applying the smoke test and finding only the drain leaking, that the second inspection be put on by drain contractor.

Clause No. 5

That all drain contractors be licensed

and held responsible for plans filed for tiled drains.

Clause No. 6

They also recommend that it be a breach of the by-law to have any portion of the plumbing or drainage covered before inspections and that all inspectors be supplied by the Medical Health Dept. with a paper showing that all the work has been passed. They think that the plumber should have all necessary work ready for inspection so they could have the poster put up. They believe this would help them to get their first draw. They feel it would be a safeguard from other trades covering up work not inspected.

Clause No. 7

Where installations are made without a permit or inspection they suggest that not only shall persons doing such work be fined in the police court but they should be compelled to re-install according to the by-law and that a plumber's license be cancelled after third offense in two years.

Clause No. 8

In cases where a sink already exists and the client desires combination sink and tubs they recommend that 1 1/4 in. existing vent may be used for venting both traps. In cases where laundry tubs are wanted in basement that existing 1 1/4 in. sink vent may be used for the tubs.

Clause No. 9

That wood-strip closet seats be condemned as the wood-strip becomes unsanitary.

Clause No. 10

That woodwork frames for flat rimmed sinks be condemned and iron brackets be used instead on account of unsanitary conditions that woodwork causes through age.

They also recommend that master plumber and drain layer be called together at least once a year for the purpose of discussing any grievances which may arise from time to time. They feel by having the meetings, a more friendly feeling would be created amongst the chain as a whole.

TEST CENTRAL HEATING AS FUEL ISSUE SOLUTION

Ottawa.—Although the coming of spring has temporarily solved the fuel problem, the federal minister of mines is preparing to meet demands of next winter.

Upon the recommendation of the Dominion fuel board, the federal government has decided to proceed immediately with investigations into the possible development of central heating plants.

Broadening the Scope of the Plumbing and Drainage Inspectors' Duties

Danger of Unsanitary Conditions Under Certain Circumstances Should be Understood to Some Extent by Plumbing Inspector as Well as the Medical Health Dept.

Address by D. S. WARK, Plumbing Inspector of City of Hamilton, Ont., before Convention Association of Plumbing and Drainage Inspectors of Ontario, London, Ont.

THE WORK and duty of the plumbing inspector for generations past, or ever since this official came into existence, has been to inspect plumbing in general, and to direct plumbers as to what is, and what is not essential, under the building by-laws as relating to plumbing, and the plumbing by-laws in the district for which he is appointed.

He must of necessity be a man of practical knowledge, and thoroughly experienced in his work if he hopes to be successful in his duties, and to merit the confidence of the master and the journeyman plumber alike, and the esteem of the authority by whom he is appointed.

He should be able to detail in simple language what is demanded of the master and journeyman plumber, under the by-laws. He is required to know the whys, and the wherefors of all plumbing fixtures and fittings, both new and old. He should be able to demonstrate the points for and against every known type of water closet, urinal, sink, wash-basin, and other connections; he is expected to know exactly how such should be fitted, the size and material of the various pipes and connections, the most suitable position in which they should be located, and to be able to pass judgment upon workmanship and materials without the slightest hesitation. It might be said at this point that there is nothing new in this line of thought, for all plumbing inspectors know, or should know, these things.

Introduction of Sanitary Inspection

The passing of that great sanitary law, The Public Health Act, of 1875, in England, brought into being the sanitary inspector. From the initial passing of this act it became evident that men possessing sanitary knowledge were required to fill these positions, and they were designated inspectors of nuisances under the principal act and the amendments which followed.

It soon became evident that men should be trained along special lines of matters relating to Health Conditions. The Sanitary Institute of Great Britain, one of the earliest institutes to be established, began to train men as sanitary or health inspectors, and as time went on no man could be appointed as a sanitary inspector unless he possessed

the certificate of competency in sanitary knowledge from the Sanitary Institute, or if an unqualified man obtained a position it was on the understanding that he obtained such qualification within a given period and he was held on probation only until the time granted. If he succeeded at his examination by the Sanitary Institute, his appointment was confirmed, if he failed, he was let out.



W. H. MEADOWS

Toronto, Ont., re-elected secretary of the Association of Plumbing and Drain Inspectors of Ontario for 1923-24.

Other examining bodies came into existence, such as the British Institute of Public Health, now known as the Royal Institute; the holders of a certificate from this institute were in demand, as only highly trained and academic men were able to satisfy the examiners; two years of initial training was necessary for sitting at these examinations. The Victoria University of London also opened its colleges for training sanitarians and demanded a two years' attendance before eligibility for examination.

The City and Guilds of London Institute, trained and set apart men for training in special branches of sanitary work, plumbing a specialty.

The Science and Art Department also trained men for certain lines of sanitary work.

As the numbers of inspectors increased in various parts of the United King-

dom, men were set apart for certain branches of the work; some as food inspectors, others, dairy inspectors, some for the inspection of tenements, others for the inspection of buildings, and from which branch the building inspector came into being, others with a knowledge of plumbing to inspect plumbing, and from this last the plumbing inspector, as we know him, has been developed.

The importance of the plumbing inspector's office and work, is demonstrated by the fact that in no organized territory in the Old Country or in the Dominion of Canada, or in fact, in any civilized part of the world is it possible to instal plumbing or in making any substantial additions to old plumbing, except under the supervision of the plumbing inspector.

Special Training

It might be mentioned here that all sanitary inspectors are specially trained in plumbing, and in many localities occupy the dual position of sanitary and plumbing inspector.

The plumbing inspector being a man of many parts, should be acquainted with the principles in their most remote details, underlying plumbing work. He should also be acquainted with the technical points of his work, and be in a position to explain such matters in detail, and to seek after knowledge from all available sources in relation to his work.

He is required to possess some knowledge of the various systems of sewage disposal, and be in a position to pronounce upon any system proposed, or advocated for his district, for sewage disposal arrangements vary widely in type, depending on local geological climates and streams and sea conditions.

The question of sewage disposal of sea coast towns and cities is of comparatively simple solution. Inland towns and riverside cities, as well as lake-side localities have their own peculiar difficulties to face.

Only a few years ago sewage was sent into rivers, streams and lakes, without ever a thought of purification before discharge. This practice is now frowned upon by all modern sanitary authorities, and few if any civic authority, unless possibly the most antiquated of our civic fathers, would tolerate the pollution of

(Continued on page 38)

Does Active Spring Business in Rural and Summer Resort Districts With Sanitary and Heating Equipment



SINCE the plumbing firm of Ecclestone & Bates, Limited, of Bracebridge, Ont., was incorporated in 1911, this company has made wonderful progress in the development of business in plumbing and heating equipment, tinsmithing, installation of water systems, electric light plants, etc. The district in which this thriving plumbing concern is located is strictly a rural one, sewers being an unknown quantity. It is the centre of a large summer tourist trade as well. It is a fairly well settled rural district where farmers have by hard work and intelligent planning built up a fairly

comfortable livelihood. It remained, however, for an aggressive plumbing concern to considerably alter the standards of living of the rural population by placing before them in a pleasing yet forceful manner the great advantages of modern sanitation equipment, the great saving of time and reduction of heavy labor in the work of the farm, and the fact that these people could with comparatively small expenditure have all the comfort and convenience provided by modern sanitary and heating installations such as are found in the homes of their city friends. Working on this plan,

and following out some other useful ideas which the members of this firm conceived, a very successful trade has been developed in rural equipment.

The progress of this company has been in face of an uphill battle all the way, for dwellers in the rural districts who are more or less content to get along with the antiquated equipment which their forefathers have passed on to them, are not easily stirred up to adopt new methods. The firm attribute much of their success to following strictly the motto "Selling Service and Satisfaction."

Discussing the best methods for devel-

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ECCLESTONE & BATES, LIMITED

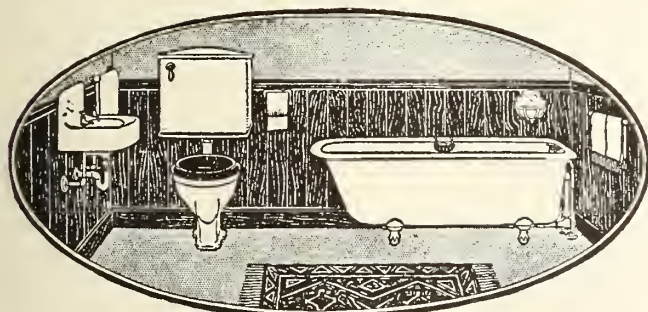
Plumbing

Tinsmithing

Heating

Electric Plants

Water Systems



OUR MOTTO "SERVICE"

BRACEBRIDGE, ONT.,19....

Copy of the letterhead used by the firm of Ecclestone & Bates, Ltd., sanitary engineers of Bracebridge, Ont., whose methods are outlined in this article. The letterhead is quite distinctive, showing an attractive layout for a bathroom, and driving home the motto of "Service" and showing the various lines of work which are handled.

oping rural trade with Sanitary Engineer, the management pointed out that keeping in close touch with the field and watching closely for prospects was the first step. Selling the prospect on the firm itself and its ability to satisfactorily handle any available work was the next step to make sure of. When this is accomplished the next step was the interesting of the prospect in certain plumbing or heating equipment according to his requirements. The firm find that advertising brings goods results and is money well spent, but it has been their experience that irrespective of the amount of advertising done the prospect must be followed up very closely and continuously and constantly changing appeals made to his imagination. He must be shown as nearly as possible what the equipment will look like when installed in his home or his other premises; what it will do in providing more convenience for himself and his family, and last but very important in these times, how such equipment will pay for itself over a period.

Reduced Buying Power

In view of the reduced buying power of the farmer through lower prices for his crops it is found doubly necessary to show the farmer how the shipment can be made to earn dividends. This can be accomplished in reducing time now spent on manual labor, by increased efficiency, by better care of both human beings and animals.

A number of varied arguments are raised by prospects from time to time. It may be that the customer has no room

for that bath room or heating plant; or perhaps he cannot lay out the house to provide for such installations. In such cases the firm do everything in their power to help the prospect out of his troubles. They go over the plans of the building and give him real practical advice which often leads to sales of better fixtures and accessories than the customer had first thought of.

Or it may be that the customer is financially embarrassed for the time. In such cases the firm endeavor to help the prospect as far as possible, providing he is responsible. It is realized that satisfactory installations of plumbing and heating equipment provide the best advertisement which can be secured for other sales, and a special endeavor is made to introduce an installation in a new district. It is found that even if special credit terms must be offered for this first installation it is worth while because other farmers see it, and the favored farmer is unlikely to tell everyone that he is paying for it on terms. Thus no bad precedent is established.

"Where possible we help such customers out either by carrying them for a few months or by getting their paper discounted at the bank. This all helps to swell the sum total of our business and brings us business which otherwise would wait for years," said the manager.

Service is the big factor with this firm and every endeavor is made to satisfy customers on this score. Only the best of mechanics are secured, those who are willing to give their best services to repairs as well as to new work. This high class service costs no more

than the other kind, and it is found that one good job brings another where a poor job may drive many other customers away.

The show window of the shop is kept neatly dressed with seasonable goods at all times of the year. This is found to help sales very greatly. At Christmas the firm makes an extra effort to show the public a full assortment of bathroom accessories. Such sales have always brought splendid results. Last Christmas the window display idea, using the Xmas tree as suggested in Sanitary Engineer, was used to good advantage by this firm.

In the shop interior a model bath room is always on display, as illustrated herewith. It is kept neatly painted and set up showing the average lay out. Attractive showcards are used to draw the attention of the passer-by. At various times other displays include kitchen equipments, laundry outfits, electric lighting plants, engines and several makes of hot air furnaces. The public are encouraged through the firm's newspaper advertisements, to visit the showroom and inspect the stock.

Summer Resort Trade

The firm's business is by no means local. As a matter of fact it is significant that the bulk of the business is done with tourists who spend their summer months on the beautiful Muskoka Lakes, their summer cottages being equipped with the latest and best sanitary equipment available. This is the best possible indication of the great opportunities which lie before plumbers in various rural districts throughout Canada, particularly those districts located near summer resorts. An aggressive educational campaign among summer tourists would be well worth while in many parts of Canada.

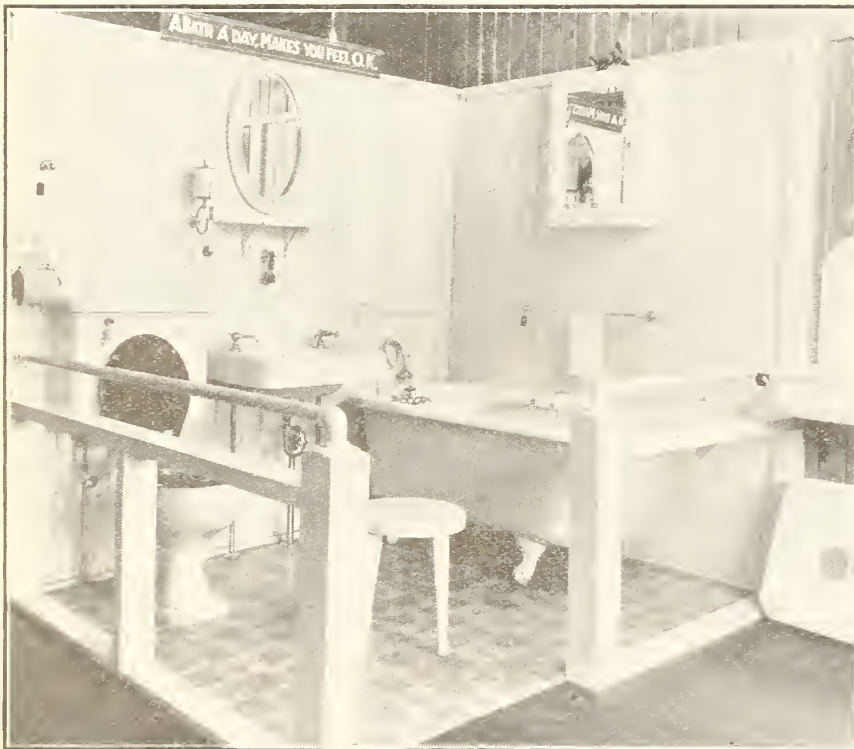
Of the active members of the company, President A. S. Bates is a master plumber, Vice-president A. E. Ecclestone is an expert sheet metal worker and Sec. Treas. Geo. Fenn is the bookkeeper and accountant. This is a triple combination which by the employment of efficient and aggressive methods has built up a splendid business in a very few years and which has planned to further revolutionize the living standards of the community before it is satisfied.

TO VOTE ON WATER PLAN

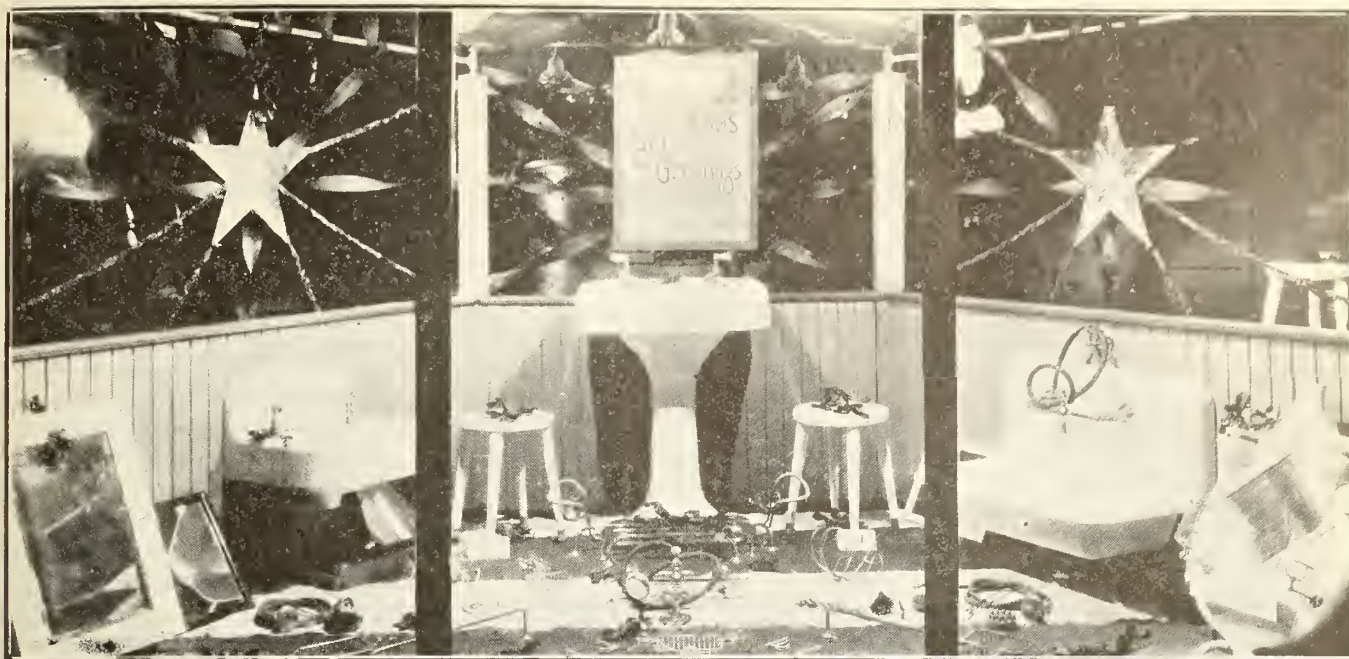
Sydney, C. B.—All that is necessary to put City Engineer Rannie MacKinnon's scheme for the purifying of the city water supply into operation is the vote of the ratepayers of the city.

The plans and survey of the reservoir area, which provide for the construction of a 2 inch main from Middle Lake to the reservoir, have just been completed by John Carlin, assistant city engineer.

The proposed scheme provides for the installation of 8,000 feet of 24 inch water main, carrying the pure water from the lake direct to the reservoir head.



Showing a complete bathroom installation in the shop interior is one of the means used by Ecclestone & Bates, Ltd., Braccbridge, to interest customers. This arrangement is varied from time to time as outlined in the article.



Bathroom specialties are arranged in very attractive window displays by Ecclestone & Bates, Ltd., Bracebridge, at various times of the year. This display used at Christmas was very effective and bears repeating at other times in the year.

Central Heating Plant for a Whole City

Estimated That the Present Plant in Use by the Government at Ottawa Would Warm Homes for Population of 17,500

OTTAWA, Ont.—The efficacy of a central heating plant in cities is advocated in a recent edition of a Toronto newspaper, and the moral is pointed from Ottawa and the Government central heating plants here which, the article states is sufficient to heat a city of 17,500 population. Or, in another way, six plants like the government one would heat the entire city of Ottawa. The article in part states:

"Those who doubt either the efficiency or the practicability of central heating for our centres of population should visit Ottawa and there view the system by which the government buildings are served. The government's central heating plant at Ottawa takes care of twelve million cubic feet, which is about equal to three thousand five hundred moderate sized dwelling houses, or to it another way, reckoning five to a house, a single plant of sufficient size to take care of the houses of a population of 17,500 individuals.

Little Heat Lost

"The government plant is located over a mile from the most remote building that it heats, the city postoffice; and even in this case it is quite as effective as an individual heating plant would be. This service gives both steam and hot water heating. For instance, the House of Commons and the Senate are heated by steam, while hot water is utilized in some six hundred other apart-

ments. The hot water is supplied by what is known as the forced circulation system, that is to say it is pumped under pressure from the power house through the miles of pipes and back again. And the interesting part of it is that the heat loss on this long journey through the pipes and radiators to and from the power house, is less than thirteen degrees.

"The government has been able with

this system to save a very substantial sum in its annual heating bill, as compared with the numerous plants that were operated in the old days. A conclusive proof that central heating is a commercial success.

"With a combination of steam and hot water, one or the other, or both, as at Ottawa, a very large proportion of any community could be served without making any changes whatever in the existing plants. It would only be necessary to couple up the service with the existing individual heating systems, eliminate your own furnaces, and boilers, and turn on the heat tap as you do your water, or your gas. No dirty coal going in, and no dirtier ashes coming out."

Trip Through Big Empire Brass Co. Plant

Delegates to Convention of Ontario Association of Plumbing and Drainage Inspectors Much Interested in Processes Described in London, Ont., Plant.

LONDON, Ont.—One of the pleasing features of the convention of the Ontario Association of Plumbing and Drainage Inspectors was the courtesy of a trip through the big plant of the Empire Brass Mfg. Co. The officers of the company using a fleet of motor cars took the delegates to the big plant on Dundas Street, east, where the various processes of manufacture were demonstrated and explained. One of the most interesting features of the trip through the plant was an examination of the huge electric furnaces of which there are few in Canada. Details of this type of furnace were illustrated and explained in an article in Sanitary Engineer some months ago.

Delegates were greatly impressed by the extreme care taken in testing products in the various stages of production and the general feeling seemed to be that in handling brass valves or other such products, the plumber or heating engineer was frequently liable to forget the number of operations through which the article passed in process of manufacture.

The trip through the plant was not only entertaining but of great educational value and the appreciation of the association was expressed to Messrs. Stevens, Ivey, Darling, and other officers of the Empire Brass Co., for the kindness in providing what proved to be one of the most pleasing features of the convention.

"I Wish't I Was Back in Baseball and Sum-Body Else Thaughing Out Pipes and Radyaters"

Jerry Begins to Long for His Old Stamping Grounds as the Baseball Teams Commence Practice in the South—Shows Why People Who Live in Celluloid Houses Shouldn't Light Matches

With apologies to Ring Lardner. Written for Sanitary Engineer by MAJOR L. L. ANTHERS, Managing Director Anthes Foundry Co., Ltd., Toronto.

Tarrabonne, March 31, 1923.

Dear Friend Al:

I BEAN readin all abt. the boys down around Tampa and other aqnatorical parts loosening up on the old diamond befoar beginning there shedule fur the season. It sure make me grean with envie. Hear we are up hear in Tarraboom still blowin on our fingers and climbin over snow-drifts. Winter is sure playin a long post season serious. Bizness is tide up titeren beezwacks, and wile we done a lot of figgerin away back in Feb. we are still waitin fur things 2 loosen up. The weather probs has so fooled the gen. public with a few days of sonshine followed up by a frosty encore that we bean runnin a repare shop insted doin enny contractin werk. Theirs bean more radyaters friz & pipes bust than in the histry of the berg. The hole gang has bean kept goin like dockters dureing a floo eypdemyc. Of coarse evryboddy hollers like stuck pigs that theys bean robbed, but bleeve you me we hardly make the mens wages on this amergency stuff. Its a reglar hart braker & nobody gets no sleep.

This is time of the yeer that I wisht I was back in baseball & sum-body else thaughing out other peeples pipse & radyaters & etc. up in this hear end of the world.

I guess its the long winter that maiks us peevich as evryboddy arnd. hear is like bares with a soar hed. Even Vilet is as snappie as a wulf-trap & wont stand no kiddin from noboddy.

& then the floo! Weave all had it & then onct agen fer good mesher. I see bye the paipers that the meddicle men is discoverin somethin new evry day to cure somethin or other but Ime still waitin fur the guy to come along hoo can take a fall outo the allusive floo germ. Talkin abt. floo I see theyve discovered a knew cure fer phenomia by alicktrycitee witch is the saim as we use fer thaughin out pipse.

I allwers clamed that if dockters new

moar abt. plumbing the helth of the communitie wldnt. suffer so much as it is. The hole trubble is they got started rong & begin to copy the barbers who was the dockters befoar they was enny dockters. I spose they had to begin sumwhear & as they see barbers cuttin foax up with raizers that give them the h'nt & theyve bean cutt-ups ever since ha! ha! (that old joak of mine always terns up). A barber may no all abt. shaveing a pig as it sez in the old testmint or sum whares but a live plumber nose moar abt. jints elboze swettin & cerclulation & etc. than enny barber what has shaved a pig or enny other branch of the human speeshies.

Sum cheep goof thot heed pulled offa hot 1 wen he sed that plumbers is also expertz on skin-grafting. Selp me Al I never new a plumber skin ennyone yet but what sum slick worker grafted it offa him. Peeples what lives in celuloyd houses shuddent lite matches & a lot of



"A live plumber nose moar about jints, elboze, swettin and cerclulation, etc., than enny barber what has shaved a pig"—Jerry.

them smart Alicks what is tryeing to make the plumber apeer to the gen. public as robbers & boobs is just trying to hide there own trax.

"Fresh" Manoor hoo. runs the livry stable hear thot he had a side-buster.

"Say Jerry," he sez 2 me when he was rollin the bones in his back offis last Tues., "Why is a plumber?"

"Why is a what?" I came back not knowin wat he was tockin abt.

"Itz a new riddel," he sez, "jest why is a plumber?"

I coulda come back with a dirty 1 but that aint my stile, so I sez in my most sang fraud manor, "2 keep the rest of the world strate."

You see I had mi plum lion in mind.

"Nope," he retortured, winkin at "Sugar" Sand the grocer. "Give up?"

"A plumber usually has to give up," I side as he rolled a 7 & took in my dime.

"Well becaws he swings the led, haw, haw, haw!" and that hole bunch of small town topiks laffed like it was Al Jolson lettin loose a joak facktry.

That sort of stuff gets me soar. But I was redder fer him.

"Why is a livry stable?" I perpounds.

"Because it is," he smilz bak.

"Naw. Give up?"

"Yep."

"Sure you dont no?" I sez.

"Nope."

"Well thats a horse on you," I shot out, "fer if you dont no noboddy else doz either."

Thats wat I calls a slick cumback.

Sum fokes seems to think that a plumber is Adams funny bone & that they gotta laff evry time they hears the name.

That libel abt. the plumbers have 2 go bak afir his tools is as old a 2 Tank Hammond himself. Sum old dame calls you up and sez you gotta come up at onct theirs watter leakin throo the seal-in.

"Wheres it cum from?" you asts.

"O I dont no but hurry up & cum quik."

You dont no weather its a crackt hole or a bust tank or a split pipe but they expecks you to arrive on the job in 10 mins. with jest the rite toolz as if you shld. no jest wat is wanted.

How abt. the bricklayer? If your chimibly bloze down & you get xcited & call up a contractor doz. he cum hustling up with a lode of brix & mortar & all that nessery to give you instanous job? You bet yr. life he doant.

& then if part of your roof bloze off doz. he cum along with a cuppla bundel of shingals and shingal nales? No agen.

If the cook pores cole-oil in the stoave 2 help a lazy fire along & blows the top off & sum timze her own top as well doz. sumboddy cum along the 1st alarm with a new top all reddy to fit & the toolz fer the job? Negativly not.

If the old watch yer grandfather left you goze on strike doz. the jooler shoot up to the hous to maik it rite? Onct agen no!

Finley if you tripp on the seller stares wile your goin after a bucket of soft cole & slait that has bean scent you by sum honnest cole-deeler & you bust yr. laig in abt. 6 placis & a few ribs & prapes yr. nek doz. the Dr. arrive on the $\frac{1}{4}$ hr. with jest the rite buck-saws & operating taible & Annie Setiks & etc. to make a compleat no cum back job? You bet yr. sweet life he dont.

So could I go on add indefinitum. But the plumber. Their is no xcuse fer him. Hee shld. no! Itz a big complement 2 his intelligence but it doesnt work out that weigh.

Wen a plumber sends in hiz bill theirs immed. a holler abt. the time chgd. As if the bricklayer and the roofer & the stone-man & the jooler & the dockter didnt charge for hiz time! If a dockter succeeds in killing his patience you got to pay him all the saim & the undertaiker & the graveyard & so fourth jest the saim & theirs no cum-bax. But if a steem-fitterz helper happens to leeve a pet-cock on a radiator open wen the water is being turned on & it aint notised till the water witch must find its livil startz to cum down the stare carpet theirs an actn. fer damages at onct. & the plumber has to pay & he cant even fine the helper on acc. of helpers bein so scairce these days.

I guess it must be the after effect of the floo what makes me seem presi-mistic & I jest gotta get sum thing offa



"This is the time of yeer that I wisht I was back in baseball & sumbody else thaughing out other people's pipes."—Jerry.

my chest an I may have pueumonia & have 2 b thaughted out myself. But wen you here a irrisponcible nocking the plumbing trade jest reminde him theirs a lot of things he done no abt. plumbing & etc. & that its the old faible of give

a dog a bad naime & hang him kicking before and after.

With theeze chearful remks. I will ajourn.

Yours in despare,
JERRY.

SAVING OF GAS FROM COVERING HOT-WATER TANK

"What number of cubic feet of natural gas should be saved per hour from covering a steel hot-water tank with $1\frac{1}{2}$ in. thick asbestos block? The area of tank surface to be covered is 66 sq. ft. The tank is kept filled with water at the temperature of 210 deg. Fahr. and is supplied at the rate of 250 gal. of water per hour through a copper-coil, gas-heated water heater which receives the water at the temperature of 60 deg. Fahr."

This question, submitted to the editor of Power, was answered as follows:

"Assuming that the atmosphere surrounding the tank is at the temperature of 70 deg. Fahr., the temperature difference is $210 - 70 = 140$ deg. Fahr. With this difference the loss of heat by

radiation to the surrounding air could be about 2.1 B.t.u. per degree difference of temperature per square foot of bare surface per hour; that is, without covering, the loss would be

$$140 \times 2.1 \times 66 = 19,404 \text{ B.t.u. per hour}$$

"Average natural gas has a heat value of about 1,000 B.t.u. per cubic foot, and allowing 50 per cent. efficiency for the heater, the radiation of heat from the bare water tank would require combustion of about

$$19,404 \div (1000 \times 0.5) = 38.8 \text{ cu. ft. of gas per hour.}$$

"The efficiency of $1\frac{1}{2}$ in. asbestos block covering would be about 75 per cent., and the actual saving would be approximately 75 per cent. of $38.8 = 29.1$ cu. ft. of natural gas per hour, or about 0.44 cu. ft. of gas per hour per square foot of the covering."

Layouts and Copy Suggestions Which Have Proved Effective for Other Plumbers

W. H. DONEY
PLUMBING ENGINEER

On **Have Your Bathroom First Class**



Have it second to none among the rooms of your home. Your family uses that room constantly, so why not have it right? Let us install our modern sanitary equipment, such as porcelain tub, wash basin, toilet, footbath, etc.

Chestnut & Sons, Ltd.
Phoenix Square
Plumbing Department
Irvine, Mgr.

"A SPRING CLEAN UP. A good time to carry out that idea of replacing the ill-smelling sink in the corner of the kitchen with a nice white roll rim sink with a high white back and white enamelled iron drain board on the end to drain the dishes and vegetables. Now is a good time to discard that foul-smelling closet with a modern closet at a reasonable price. See us for your plumbing requirements." T. J. Minnes, Brantford, Ont.

Sewage Disposal Plan in Rural Home

An Actual Installation Under Difficult Conditions—Cesspool Nearly Washed Out Embankment—Menace to Health—Waste of Money Creates Financial Hardship

Written for Sanitary Engineer by EDWIN NEWSOME, Consulting Sanitary and Heating Engineer

THERE are many reasons why a sewage disposal system should be properly installed at first, more so than any other kind of construction. It is quite in order to install apparatus of one kind or another in a temporary manner because of the person not being in a position to pay the higher price for an A. 1. job. But where an installation has to do with safeguarding the health of the person having the work done or that of the health of other people living in the vicinity, no temporary installation should be made and the very best is none too good. It would be far better to leave such an undertaking in abeyance until the cost can be borne.

We have here a case in point. A house was built on the edge of an embankment. A cesspool built. The house was occupied for a number of years. It is fitted with complete bathroom and other city conveniences and is situated about eight or ten miles from the City of Toronto. The location appears to be ideal and everything seems lovely. There is a change of ownership made and the new owners have all they

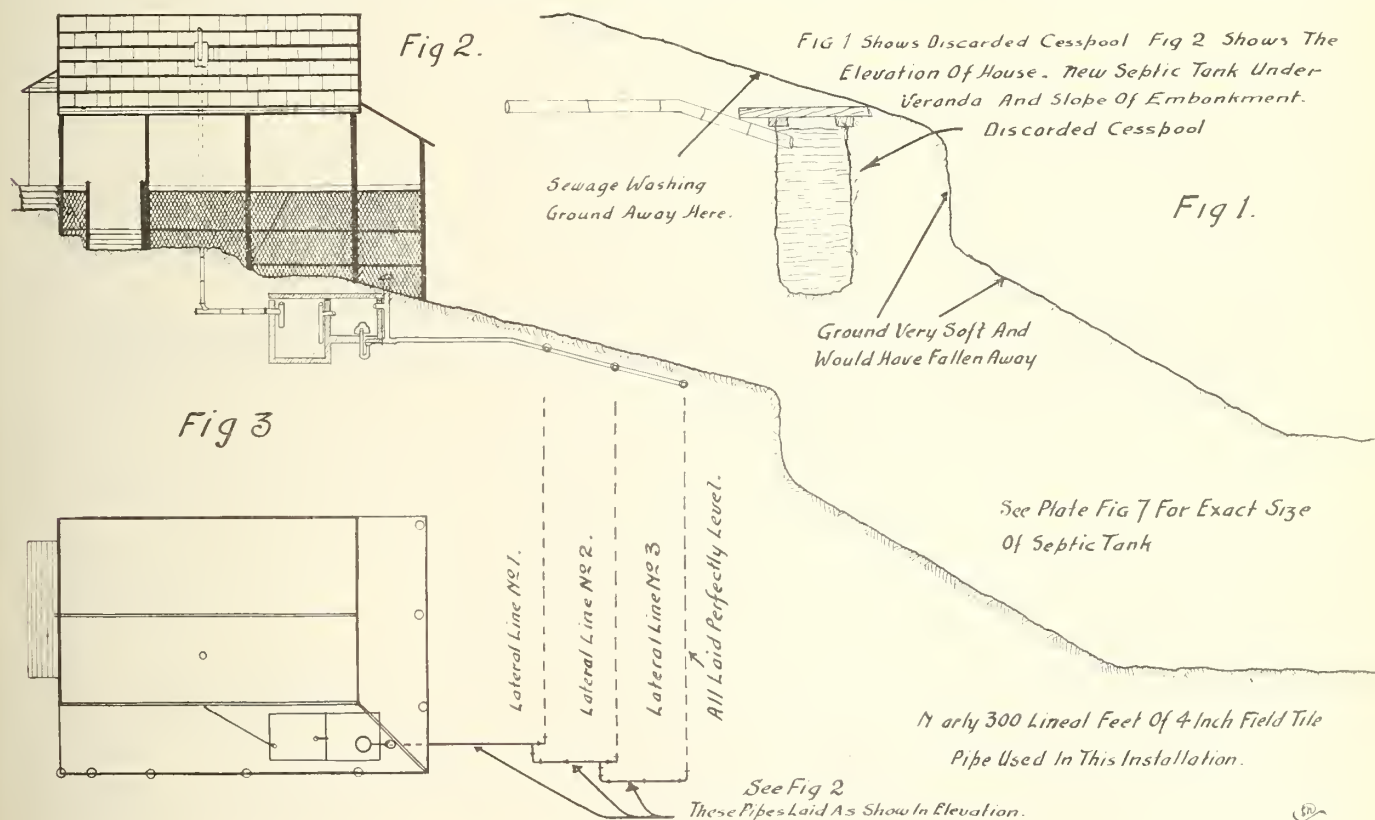
can do to make ends meet. They have only occupied the house a short time when foul odors begin to find their way into the house. A thorough investigation is made, resulting in it being found that a cesspool is causing the trouble.

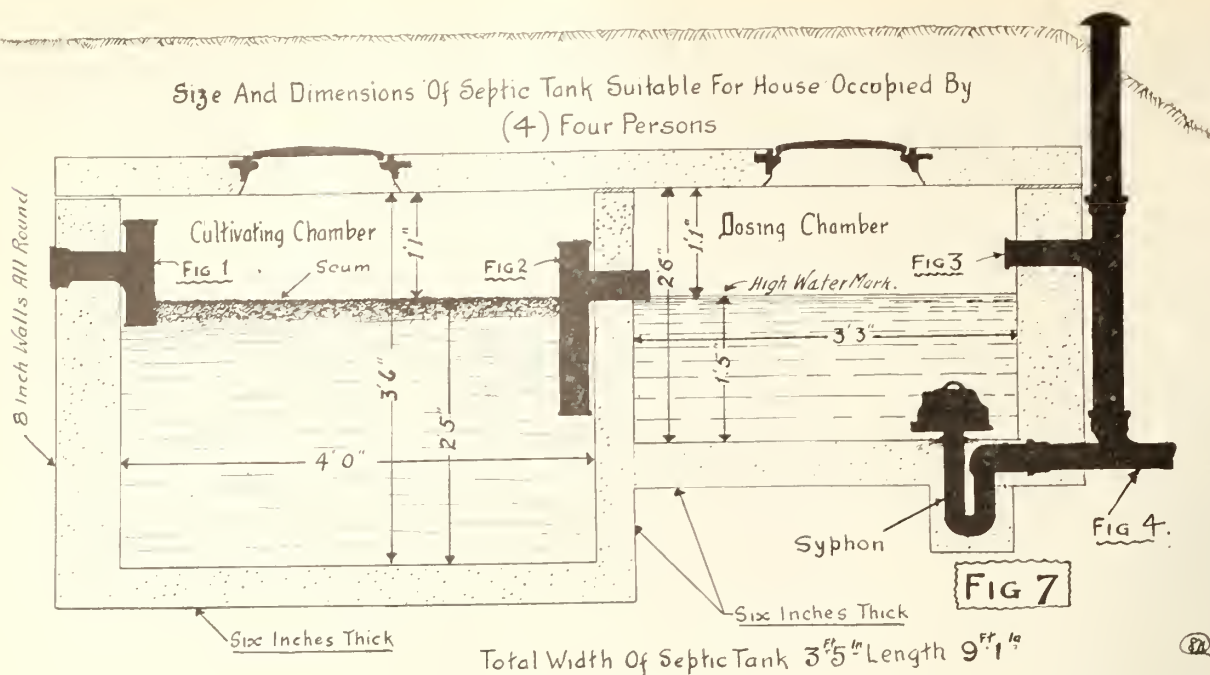
Not only are the odors bad enough but it transpires that the liquid has saturated the ground on the side of the hill. (See fig. 1) That there was a danger of the whole side of the embankment collapsing. Both dangerous and a menace to the health of the occupants. And here, the new owners have to begin to spend a lot of money having the whole contraption put out of use, incurring a terrible expense which the new owners can ill afford. There are hundreds of conditions similar all over this Dominion. Conditions that work a hardship on innocent people, and no temporary remedy, much as one would like to suggest such. The house would have been rendered unfit for human habitation.

However after going over the ground it was found advisable to reinforce with stones and sods that portion of the

embankment most likely to fall away. This was done and a modern septic tank installed. There was also another difficulty to overcome, the fact of the house being situated close to the lot line of a neighbor. This meant that the disposal field tile would be required to be laid so that no sewage could flow on to another person's lot. Furthermore the land available has a very steep pitch, as will be noted in Fig. 2. Here we find that a septic tank fitted with syphon and standard septic tank fittings, has been constructed, and the field tile laid in rather novel manner. No fear of the sewage washing the ground away, first because the field tile pipe is close to the top of the ground and the sewage is quickly discharged into ample sized field tile pipe. Then again the pipes are all laid level, even though they do not all fill up at once, and the syphon discharges at the rate of from 80 to 90 gallons per minute. Yet the installation is working splendidly.

In this case the amount of field tile was increased about 20 per cent, because of the fact that a large area of ground





was available on the one hand and also because of the fact that the sewage has a greater likelihood of being evaporated seeing that the piping is laid in a bank of earth, the ground also being rather sandy.

Three Lines of Laterals

The size of the septic tank is shown in Fig. 7. But the disposal field tile pipe is laid out in a very different manner. There only being three long lines of laterals, all laid level, even though the main pipes have to follow the contour of the ground.

If our reader noted the method of laying the pipe shown in a previous issue it will be found that the principle followed in this installation is the same. It will be seen, however, that instead of the sewage discharging first on one side of the glazed drain tile and then on the other that the sewage fills up laterals number one. Then rises up to the branch fitted into the main line and down to lateral line number two, up again through the branch in the main line and down to lateral line number three. It is impossible for any sewage to enter the lower pipes until the one situated on the higher plane is filled first.

The Difference

The only difference between the way the effluent flows in this installation is that in the former one referred to the sewage is pumped up from the dosing chamber by an electric pump into a distributing chamber and down into the hillside disposal area. Whereas the action is the effluent is discharged through a three inch syphon direct into the field tile and distributes the effluent into three lines of laterals, all laid in one direction as shown.

The drain tile pipe with hubs were

six inches in diameter, the branches 6 x 4. So that the four inch field tile pipe fitted direct into the branches. The field tile pipe was covered with rough stones, etc., and laid one quarter of one inch apart.

There is one important feature, too, in this installation and that is the fact that the water supply is safe from pollution, as the pump and well is located on a still higher plane than the disposal system and not likely to become polluted from surface water. An interesting bit of information has been published in one of the bulletins which reads as follows:

Among the samples of agricultural interest sent to the Division of Chemistry of the Dominion Experimental Farms for analysis last year were 119 samples of water from farm wells, with a view to securing information as to whether they were pure and wholesome for drinking purposes. Of these 24 per cent. were found to be satisfactory, 18 per cent. were suspicious and probably dangerous, and 35 per cent. seriously polluted. It is found that in the majority of instances that polluted water comes from shallow wells which are improperly located, either in the barnyard or under the stable or barn, or not far from the outhouse. Sooner or later, states the Dominion Chemist in his annual report, a well thus located must become contaminated and its water a menace to health. The well should be located at least fifty yards from any probable source of contamination, while as an additional safeguard the surrounding area should be maintained in sod. It will be found of very considerable value to line the well to a depth of 10 to 12 feet and to a thickness of, say 6 inches, with concrete or puddled clay, continuing this wall or lining for a foot above

ground. A number of other useful suggestions relating to the subject are contained in the report.

If contamination is suspected the following safeguards are recommended:

1. Boiling for ten or fifteen minutes all water required for drinking or culinary use. The water thus boiled can be aerated and freed from insipidity, by cooling in the open air.

2. Chlorination. A level teaspoonful of chloride of lime is rubbed up with a little water to the consistency of cream. This thin paste is diluted and thoroughly mixed with water to the volume of approximately one pint, bottled and securely corked. This stock solution will keep for at least a week. A teaspoonful of this solution should be added with stirring to each two gallons of the water to be treated. After fifteen minutes all disease germs will be destroyed.

The use of chloride of lime as above stated is a splendid remedy. But as sanitary engineers our work should be of a preventative nature, and if the information published in this series of articles regarding location of wells, of septic tanks, and the general layout of piping plans are followed, the probabilities of water pollution are very meagre. Not only so, but with a good disposal field tile area, plenty of piping and well prepared bed, the likelihood of pollution from surface water is rendered almost nil.

(To be Continued)

G. H. Brydon, formerly connected with the James Robertson Company Limited, Toronto, is now representing Pease Foundry Co., in North Western Ontario. Mr. Brydon was with this firm for many years up to about 1914, and is again returning to the Pease staff.

The Value of Piping on a Farm

How It Can be Used, Protected From Corrosion, Saving of Time, Increasing Safety of Buildings, Cheaper and More Reliable Than Timbers, for Posts, Columns, and Stable Furnishings, a Simple Hot and Cold Water Supply System

By EDWIN NEWSOME, S.E., Lecturer on Farm Mechanics, O.A. Department, Ontario Government, and Consulting Engineer

I HAVE often wondered why so little wrought iron or steel pipe is used on farm. But, after visiting quite a number recently, after talking to a number of farmers, during the last few months, I find that one reason is that very few farmers know just how to use pipe on their farms. Very few know how to use pipe tools, stocks, dies, pipe wrenches and cutters, and to suggest that a plumber or fitter be engaged to do the work would be out of the question. But the use of pipe tools on a farm, would create a great deal more interest in the use of pipe in buildings, such as cow stables, byres, sheds, houses, and so on. One farmer declared that he and his hired men had several times had to repair posts, wooden as well as cement, in some of their buildings, and that piping would have eliminated such extra expense.

Pipe in the Cow Byre

I believe that, if I were going to build a new cow byre, I would first find out what I could buy the pipe and fittings for, that would make the whole framework with pipe and fittings. First, because I could, I know, procure a neater job, I could save room, I could make a stronger building, and one that would last longer, and depreciate in value very little.

If I were a farmer, I would make a rough sketch of the building I proposed

to erect, with the various measurements, width, length and height, and then I would give some consideration to the extra available space, as against a wood constructed building. I would consider the strength and safety factor of such a type of building.

Having decided upon the various necessary details, I would send my sketch to some local plumber and fitter, or hardwareman conducting such a department as could take on such work, ask for an estimate of cost, sizes and the quantity of fittings necessary, and I believe the final result would be in favor of a pipe constructed frame and union supports, as well as stable stalls and other furnishings.

Water Supply for Cattle

There are very few farmers in Canada who realize how great a service water in the byres and barns would be, if such buildings were piped properly. For instance, a concrete cistern, or even a steel tank, could be placed at such a level in a cow byre that would make it possible to water cattle automatically. Piping to each stall, with the supply tank referred to, fitted with a simple ball-cock, would give a constant supply of water.

Another plan would be to run piping underground, below the frost, from a pneumatic water system to the barn, then a simple frost hydrant connected to the pipe, so that the water would not

freeze. Such an installation would soon pay for itself in time and convenience.

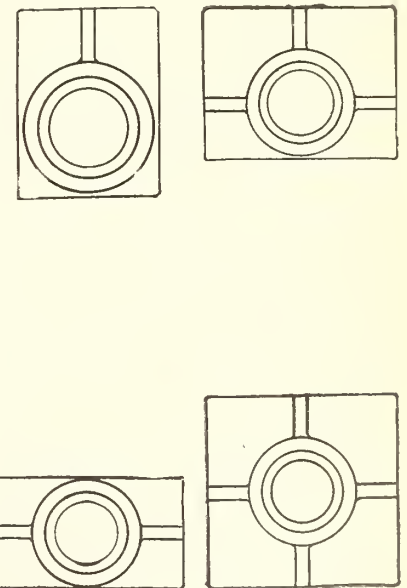
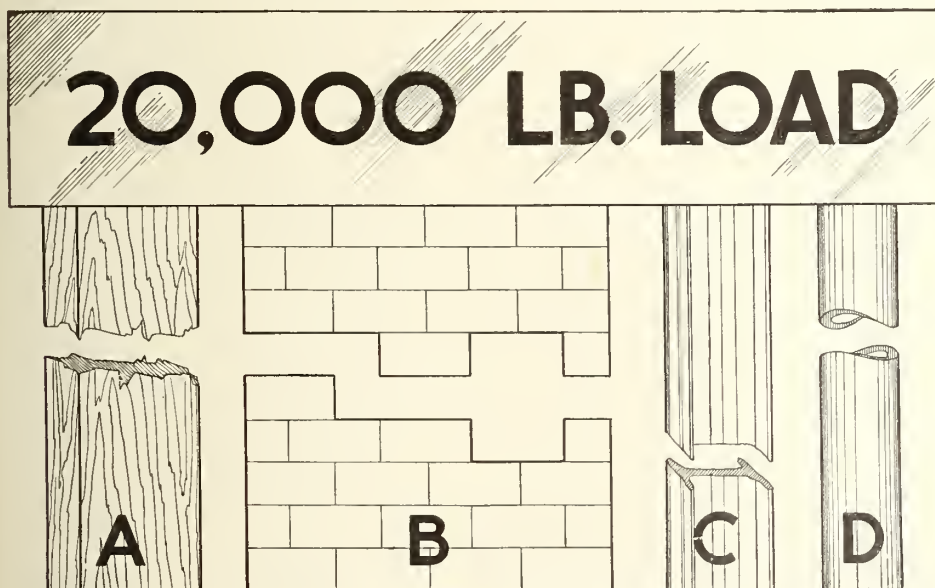
Only a few weeks ago, a splendid barn was burned down that could have been saved if such an arrangement had been available. Water on tap, under pressure, cannot be estimated in mere dollars and cents, when buildings can be saved from destruction by fire, all a matter of properly laid piping, very often.

These are only a few ideas that could be worked out by the average energetic member of the plumbing trade. Farmers do need more enlightening into what the plumbing trade could do for them.

Water Supply System For House

The use of a pneumatic water system on a farm is not yet taken into as serious consideration as might be. The farmer hires help to carry water, when 99 times out of 100, a few hundred feet of pipe would save hundreds, if not thousands, of hours of time during the year.

Just imagine paying a man, or even expecting one's wife to pump and carry water (even a few yards) these days. The average hired man costs, at least, \$75 a month, salary and keep, and if one man spends one hour a day, seven days per week, carrying and pumping water, and the working day is twelve hours, at seven days per week, the monthly cost for such work would amount to \$6.25, or,



equal to \$75 per year for pumping and carrying water.

Cut down such cost even to half that amount, and one can readily see that a few hundred dollars invested in pumping and piping would save both time and money, and when we begin to consider the wife of a farmer, and the amount of work she has to do, when every drop of water has to be pumped by hand, and carried into the kitchen, the above figures don't even bear a first consideration, and the best figures available prove that not 15 per cent. of farms have water piped to the kitchen. This is very strange when pressure systems can be procured at so low a cost.

Hot and Cold Water at Sink

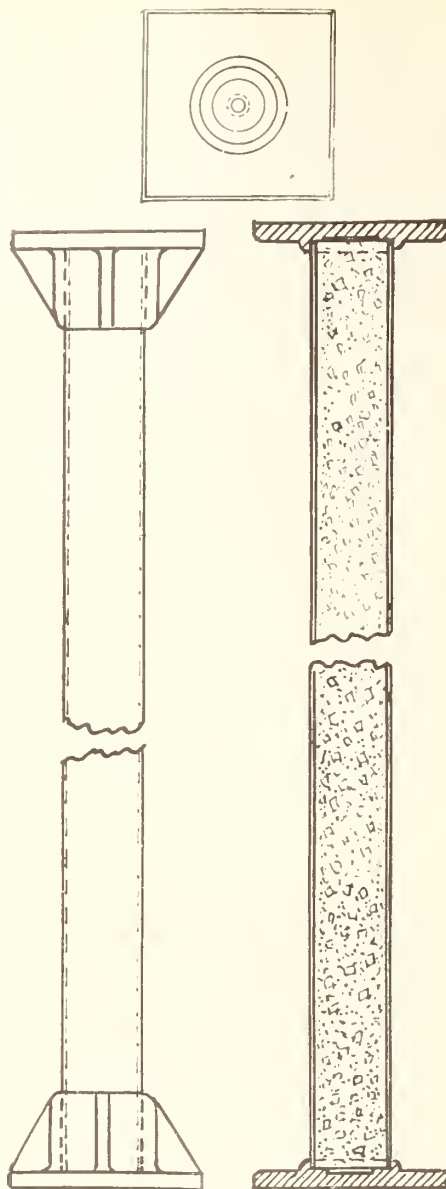
Even where there is a soft water cistern in the basement, and a kitchen pump in use, a few feet of pipe connected to a standard kitchen range boiler would give the occupants of a farm house hot and cold water at the tap. The sketch shown herewith gives one an idea how such a service could be procured very easily. Then why such a scarcity of hot water? Why the unnecessary steps for the farm household help? Then again, such an installation as described in sketch could be enlarged upon, or added to. For example, the pipe connected to the pump could be attached to a pneumatic water system at a later date, the hot and cold water pipes to a bathroom could be connected without any tearing down, so that even such a simple system of piping in a kitchen would be a splendid convenience and result in a big saving of time.

Prolonging Life of Piping

Speaking to a number of farmers recently, the question of having to replace piping laid under ground came in for some discussion. It was stated that, when ground has been disturbed, water would soak into trenches where pipe is laid, and result in corrosion of the pipes in a very short time, particularly where a line of pipe was connected to a wind mill pump, and the pipe subject to a certain amount of vibration. I can never forget how I was taught to do all in my power to prolong the life of piping, no matter for what purpose it was used. That was in the old country.

First, the trenches would be dug, lined up for our levels, and then, a V shaped wooden trough, or gutter, made. The size depending upon the size of pipe. For a one-inch pipe, we used $\frac{7}{8}$ in. lumber, as rough as possible, one side 2 inch, the other 3 inch, making a V 2 inches both sides. In this V, we laid the pipe, and, after testing our piping, a covering of hot pitch, tar or asphalt, was applied to the pipe, and never do I remember having to remove such a line of piping, except when larger pipe had to be installed or alterations made.

I started out at the commencement of this article to tell what I would do if I were going to build a barn, the room I could save, the safety factor, and so on,



and I would ask the reader to compare the carrying capacity of a column made of pipe filled with concrete, and column made of H beam steel, wood, or unsightly brick piers. The accompanying sketch just shows the relative sizes of the various kinds of columns.

The wood column takes four times more space. The brick more, by many times, than even wood. The H steel beam about the same as pipe, but not as strong, by any means, if the building were subject to a fire.

A pipe column filled with concrete is as near fireproof as it is possible to get one, and many a barn could have been saved, if only the columns had held up.

Capacity of Piping

I remember well, many years ago, being asked to repair a deep well pump, to which over 360 feet of $\frac{3}{4}$ inch pipe was fitted and used to convey the water from the pump to an attic tank (I don't like attic tanks, they are unsanitary as storage tanks) but that would form the basis of another story. I found that for several years the pump had caused trouble.

Every time the windmill operated the pump, the pounding noise in the pipes could be heard all over the house.

The suction line was $1\frac{1}{2}$ inches in diameter, and here was a 3-inch brass lined pump, attached to a $1\frac{1}{2}$ -inch suction pipe, trying to force its full capacity through 350 lineal feet of $\frac{3}{4}$ inch pipe, and worse than that, when the $\frac{3}{4}$ inch pipe reached the house, the size was reduced to $\frac{1}{2}$ inch. No wonder the pump caused trouble, and no wonder the noise could be heard all over the house every time the pump was working.

I put a $1\frac{1}{4}$ inch delivery pipe right up to the attic tank, and nearly 15 years after, I learned that the job had never caused one minute of trouble, and no noise. At the same time I do not approve of the use of attic tanks, but this would form the basis of another story.

If I had my own way, I would advocate the use of not less than $\frac{3}{4}$ -inch pipe for all water piping in a farm home. Far too much $\frac{1}{2}$ inch pipe is used than should be, the cost is very little more, and capacity is nearly twice that of $\frac{1}{2}$ inch. Our readers will note that I have specified $\frac{3}{4}$ -inch pipe for the kitchen installation referred to, so as to reduce the hard work of pumping by hand.

It is very seldom possible to use too large a pipe in a water system, or even a heating system, because, as a rule, the apparatus to be fitted up are tapped to receive the proper size of piping.

Letters To The Editor

The Editor, Sanitary Engineer and Steamfitter:

Sir: I noticed an article in your issue of the 15th inst. re Central Heating Plant for the City of Winnipeg, in which it is stated that it is proposed to generate the steam by electric current. Permit me to ask, would it not be more economical to instal by-product coke-ovens in connection with such plant, the coke to be sold as a substitute for anthracite? As from 3,000—3,500 cubic feet of gas can be got from each ton of coal coked it is obvious that such oven plant would not require to be very large to supply gas enough for the firing of heating plant boilers. The electrical current could be used for hauling the coal and coke cars around the ovens. Such would not only help to conserve our coal resources, but supply the people with a clean, smokeless fuel for domestic use, if passed through a crusher to the usual sizes of domestic anthracite. Many by-products could of course be extracted, but only at the expense or loss in heat and burning values of the coke. To my mind, this is the only logical manner in which our coal should be burned in all our cities.

(Signed.) J. S. KINGSTON.
Ottawa.

108 Miles of Pipe Necessary for Plumbing and Heating of Brass Mill

This Piping Includes Heating and Sprinkler Systems, Cast Iron Pipe, High Pressure Air Lines, Steam Lines, Sewer and Oil Pipes, etc.—Some Interesting Phases of This Installation

DETAILS which have been secured by Sanitary Engineer concerning the broad use of piping in connection with a modern brass mill are outlined as follows, together with some details of the installation of plumbing and heating equipment: More and more nowadays are modern plants and buildings becoming veined and threaded with the pipes and wires necessary for their maintenance. When a modern hotel has two thousand bed rooms with two thousand baths in connection, it is easy to imagine the amount of piping necessary to bring hot and cold water to each of these rooms, and the plumbing problem in connection with the electric wiring problem makes our modern buildings skeletons run by these nerves and arteries of electricity and water.

In the same way the modern plant of to-day is threaded and interlaced with pipe lines, wire and conduits which run it; machinery, light its lights, work its cranes and heat its furnaces.

It takes 108 miles of pipe to run a certain good sized brass mill which will be dealt with, and the water and air and steam and oil that run through these pipes do all manner of useful work. The pipes can be divided up into the following classifications:

To connect all these lines there are 6,223 valves, and to keep these lines in repair, men are working day and night on inspection and repair work.

A brief sketch of what these pipe lines are used for will be interesting to the plumbing engineer to show what a tremendous amount of plumbing equipment is necessary to keep a good sized brass mill in up-to-date shape.

Heating Systems

The maintenance of the heating systems commences at the condensers and separate heaters in the power plant and follows the heating pipe and coils to the farthest end of the plant. It keeps two men busy through the winter months to look after about 410,000 feet of pipe. Their work is to pack valves, expansion joints and pumps, to throttle valves so that the water will not by-pass on the feed and return pipes nearest the power house, and so cutting off other coils a half a mile or more away from circulating which would leave the rooms cold. These men also see to it that the radiators and coils do not become air bound, they inspect the pipe hangers on overhead coils to see that the threads on the nuts and bolts are safe to carry the re-

turn pipes in the conduits underneath the floors and to see that they are perfectly tight. They inspect the 3,000 valves necessary to keep up this system, and the 30 expansion joints and booster pumps and deal with pipe from 1 to 8 inches in size.

Sprinkler Systems

The sprinkler systems require 19,881 ft. of pipe, 16 fire hydrants, 12 indicator posts, 6 dry pipe valves, and 1,841

108 MILES OF PIPE

In this mill the piping is divided as follows:

Heating System	409,625 ft.
Sprinkler System	19,881 ft.
Cast Iron Pipe	7,197 ft.
High Pressure Steam Lines .	21,541 ft.
Low Pressure Air Lines	4,025 ft.
High Pressure Air Lines .	21,541 ft.
River and Filtered Water ...	19,650 ft.
Hot Water Lines	8,980 ft.
5,000 lb. Sprinkler Lines	5,225 ft.
500 lb. Sprinkler Lines	5,863 ft.
Drinking Water Lines	15,030 ft.
Sewer Pipe	36,120 ft.
Oil Pipes	5,000 ft.

Total 568,452 ft.

108 Miles of Pipe.

sprinkler heads. During the warm weather city water pressure is constantly kept on this system through what is called the by-pass pipe, but during the cold weather this by-pass pipe is closed and the water drawn from the system to prevent the pipe from freezing. The check inside the dry-pipe is sealed with water and the system is filled with high-pressure air at 30 to 40 pounds pressure. This keeps the buildings under protection, for when a sprinkler head goes off and releases air the check in the dry pipe valve opens and allows the city water to pass through. These sprinkler systems are inspected every day to see that the valves, indicator posts and hydrants are in working order, and that the air in the dry pipe valves is at the required pressure.

High Pressure Air Lines

11,315 ft. of high pressure air pipe varies from 1/4 of an inch to 8 inches in size. These air lines do all manner of interesting jobs. They run the automatic blockers which roll up sheet metal in back of the rolls; they run the hoists

that take the metal out of the pickling tubs; they run the air pushers that push billets into containers; they work the grip jaws of the hydraulic rams of the big hydraulic presses; they help run the piercing machines, the tube testers and the scalping machines; they blow out the sand which formed the core in a newly cast tube; they clean molds in the casting shops and chip out the furnaces and are among the most important of the mill piping system. They are constantly inspected as they are connected to practically every press and machine in the mill, but the repair work is done only on Saturday afternoon and Sundays as it is impossible to repair the hose connections, pack the air hoists and valves, and do other necessary work without shutting down the cranes and machines.

Low Pressure Air Lines

The 4,025 feet of low pressure air pipe ranges from 3 to 36 inches in size. These air lines run from large blowers set overhead in the mill to the mufflers and billet heaters, and supply 7,000 cubic feet of air per minute. Their main use is to blow the oil on the oil heating mufflers, and they are also used with our electric casting furnaces on the transformers under the furnace to keep the electric coils cool. All the blowers are inspected and oiled twice each day.

High Pressure Steam Lines

The high pressure steam lines have 21,541 feet of pipe of 1/2 to 6 inches in size which supply steam to the pickle tubs, the hot water tubs, the billet heaters and coal mufflers, the draw benches, steam pumps and steam ejectors and drying-out machines and for baking the cores with which our tubing is made. These lines run from high pressure headers overhead in the mill and in conduits to other buildings. High steam pressure is carried and so there is necessarily a great deal of repairing and renewals to be made in such places, for instance, where the pipe enters the highly destructive pickling solution and in other places. The main lines overhead can only be repaired when the mill is shut down Saturday afternoons and Sundays. Their expansions and contractions are taken care of by special contraction joints.

The high pressure steam is also used in the restaurant for cooking purposes, for washing dishes and in the steam tables to keep the food warm.

There are two systems of water sup-

ply for manufacturing purposes. The filtered water system, having 6,000 feet of pipe from $\frac{1}{2}$ to 8 inches in size, is connected to two filters in the boiler house and one large well in the No. 700 building. Several pumps pump this water through the mill at about 60 pounds pressure. The water is used to cool bearings on sheet rolls, for water tubs to wash the metal, for the drying-out machines, hydraulic pumps, boiler feed water and for washing purposes at all wash bowls and shower baths.

The river water system has 13,650 feet of pipe from 1 to 12 inches in size and is used for cooling molds in the casting shop, cooling brass in the mill when it comes from the casting shop and muffles and in the large water tubs to wash the acid from metal when it comes from the pickle tubs.

Around the pickle and water tubs brass pipe is used as it lasts much longer than iron pipe. The repairs are taken care of on Saturday afternoons and Sundays, as are other important pipe lines.

Hot Water Lines

The hot water system, which supplies the hot water tubs, the wash basins and shower baths throughout the plant, contains 8,980 ft. of $\frac{1}{2}$ to 3 inch pipe. The water is heated by exhaust steam which passes through a heater in the boiler house and runs throughout the plant. This system is, of course, composed of brass pipe and receives the same attention as the high pressure steam lines.

Drinking Water Lines

15,030 feet of pipe from $\frac{1}{2}$ to 2 inches in size carries our drinking water from a 38 in. main into the plant, the water being metered in the manhole as it enters the yard. Brass pipe is used exclusively inside the plant for this drinking water which supplies 81 drinking fountains. This system is inspected, tested and the meter read weekly to see that no water is wasted by underground leaks.

Sewer and Dirty Water Pipes

38,120 feet of tile pipe from 4 to 36 inches in size are run underground to take care of all sewer, pickle water, surface water, and water from the roofs.

These are the pipes that are necessary to keep a brass mill in running order.

BROADENING THE SCOPE OF THE PLUMBING AND DRAINAGE INSPECTOR'S DUTIES

(Continued from page 26)

our rivers and lakes with untreated sewage.

The method of treatment varies according to local conditions. In large cities and towns, where there is no danger of polluting the domestic water supply, the treatment depends on clarifying sewage, in sedimentation tanks alone or simply the removal of visible solids; this system is most unsatisfactory from many points of view.

In other districts clarification and

sedimentation is followed by a treatment with various chemicals and by chlorination. When this treatment is carefully and scientifically applied, the non-settling substance such as dissolved organic matter, and the objectionable and dangerous matter, including those of intestinal origin are destroyed.

Building for Future

Locality and conditions are factors that should be considered in selecting a sewage disposal system; the plant and sewage works for construction should always be dealt with at the present, but always with the possible growth of the city in view. Build in the present but think of the needs of the future.

In conclusion, it might be stated, that substantial accomplishments have been effected in our statutes as plumbing inspectors. We at one time worked out plans by a rule of thumb method; we now consider our work from a more scientific viewpoint.

While we consider the advisability of the provisions of the most up-to-date sanitary fittings, and while we consider that drains and sewers must be laid with water-tight joints at a proper and uniform gradient, we must also know that much of the efficiency of these fittings and fixtures will be negated if the apartments containing the fixtures are not provided with the means for the admission of plenty of sunlight and a liberal supply of fresh air.

We have also kept in view the fact that leaks in drains and sewers may constitute a serious danger to health, particularly when these defects exist inside the dwelling, or in the vicinity of a well or other water supply.

Soiled closet seats and dirty closet basins are a source of danger to the person using these fixtures, for it is possible that a person, apparently well and hearty, might be a carrier of the specific organism of typhoid fever. He may use a sanitary fixture, and a thoroughly healthy person follow him. On account of carelessness the latter might become infected with typhoid fever. It might be protested that surely such subjects as these are for the consideration of the sanitary inspector or medical officer of health, and entirely outside the province of the plumbing inspector. But I will say that it is our right and duty to know of these things, and when we see conditions that, although not connected with new work might be likely in our opinion be dangerous or likely to become dangerous to health, it is our duty not to look idly on and pass by the other side, but if the matter is one we hesitate to deal with ourselves, it is our duty as public servants to report the matter to the proper official.

DECIDE TO EXPEND \$100,000 ON BELLEVILLE WATER WORKS

Belleville, Ont.—At a meeting of the city council a report was presented and adopted that a new intake pipe, 30 inches

in diameter, complete with suction wells for a filter system, together with the necessary buildings for housing wells and pumps, and one highlift gasoline drive pump, be installed and constructed as nearly as possible for the water works plant. The cost will be about \$100,000.



Following items reproduced from the MacLean Publishing Company's trade paper files of March 1903:

"Lyons & Marks, dealers in plumbers' supplies, have removed from 52 Adelaide St. West, to 124 Bay St."

"Weber, Sehl & Wolfhard have bought out Philip Gies, dealer in plumbers' supplies, Berlin, Ont."

"Ed. Cavanagh, a practical plumber, has been engaged by Montreal to form a part of board of examiners which will grant licenses to plumbers in that city."

"The electrical workers employed by the firm at the King Edward Hotel have struck because the Steamfitters' Union has infringed on a branch of the electrical trade. It was in connection with the installation of conduits for electric wires."

"Ezra McDougall, who for seven years has represented James Smart Co., Brockville, in the territory from Toronto to Sherbrooke, has joined the staff of the Gurney Foundry Co., Toronto, whom he will represent in Ontario from Niagara Falls to Windsor."

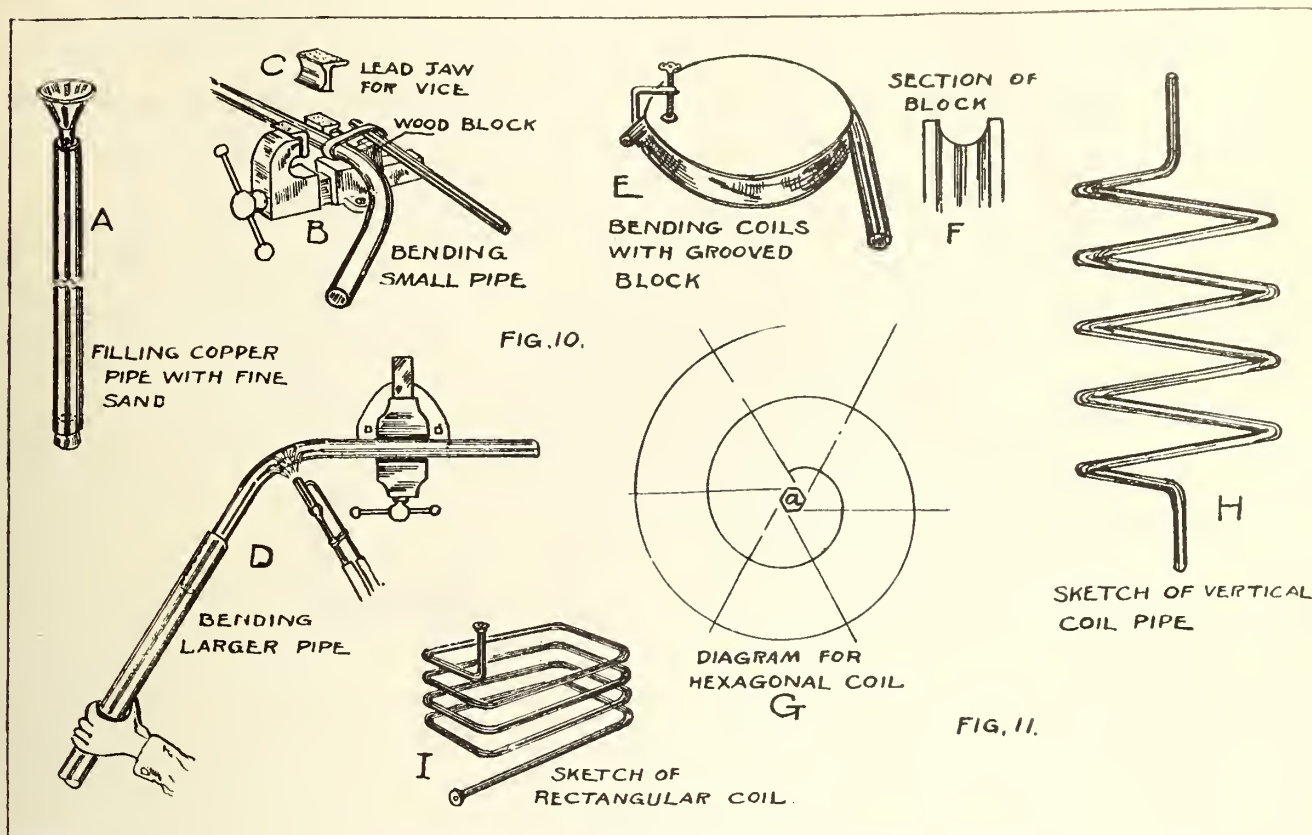
"A special committee of the Ottawa city council in company with John McKinley, of the Master Plumbers' Association, Joseph Hurtubise, representing journeymen plumbers, and others are revising the Ottawa plumbing by-law. The by-law as enacted some time ago was found too sweeping in character and will be simplified."

"The Journeymen Plumbers' and Steamfitters' Union of Montreal gave a successful banquet. Wm. Merrick, of Chicago, general president of the association, was the guest. About 400 members besides the 60 presidents of the labor bodies of the city were present. P. Howard, local president, occupied the chair."

"At the regular meeting of the Toronto Master Plumbers' Association with President Robert Ross in the chair, Secretary Wm. Adams introduced to the 60 members present five new candidates for membership: Messrs. Parmenter, Gibbs and Phillips, Queen Street East; Earl, Queen West; Campbell, Danforth Road. It was decided to hold a banquet at McConkey's when the supply houses, architects and other friends of the craft will be invited to unite with the members of the association. Fred Armstrong is chairman of the committee, Wm. Mansell is secretary and James Wilson is treasurer. The following is to be the toast list: The King; 'Canada, Our Home,' by W. H. Meredith; 'Sister Associations'; 'The Architects,' by James Wilson; 'The Manufacturers,' by Wm. Maxwell; 'The Journeymen,' by Fred Maxwell; 'The Ladies,' by Geo. Clapperton, and 'The Press.'"

Making Copper Coil Pipe

Written for Sanitary Engineer by O. W. Kothe, Principal, St. Louis Technical Institute, St. Louis



THE bending of copper pipe is very simple when undertaken by the right methods.

Many of the larger shops have regular bending machines, in which most any shape of the curve can be easily produced, so it is round and still holds the pipe uniform.

Small pipes are best bent by filling with rosin. The rosin is heated and one end of the pipe is stopped up and the pipe is filled full of rosin and permitted to cool.

When set the pipe may be bent wherever desired. After being bent, the pipe is heated gradually from the top end, toward the further end and in this way gradually melts out the rosin.

However, in general practice sand is commonly used as a filler for bending copper tubing.

At A we show a sketch of filling a pipe with sand. The sand should be quite fine, and should be set and compact well in the pipe.

This is done by tapping the pipe with a mallet as the sand is being filled in.

When filled the top end is corked and

the bend can be made similar as at B in figure 10 in an ordinary shop.

Lead jaws are cast of a similar radius to the diameter of pipe as at C and these are set in the vise for holding the pipe secure.

Then by means of the band iron link, or a piece of rope, and a block of wood, with a bar, set in the position shown, the bend is made gradually.

On larger pipes a torch is placed in the position where the bend is to be made as at D.

This helps make the metal more flexible, and by tapping it lightly, as the bend is being made, no trouble will be met with.

The making of coils, as in figure 11, where we have a cylindrical coil as at H, a sort of grooved block as at E and F may be used for making the bends in coil.

In this way as many revolutions are made as are required and afterward the space between the revolutions are averaged up and adjusted so a uniform rise and curvature is maintained.

Where coils are to be made to suit a

spiral as at G, figure 11, then the spiral is designed from the center either by means of a triangle, or square or hexagon as in this case.

By using the various corners of the hexagon a, the spiral is described making as many revolutions as desired. After this the copper tubing is bent either with a bending block as at E or in a vise as at figure 10.

As the pipe is being worked it is occasionally fitted to the working drawing G so the lines will be followed. Where a rectangular coil, as in sketch I is met with, then the bends are made to a 90-degree angle and the pipe is pulled apart to give it the coil effect.

All this requires practice and when a person once understands give and take in metal, especially copper, all this is very easy.

It is commonly reported, and that by many coppersmiths, that the main thing about coppersmithing is hard work and in that we agree because after the knack of working the metal has been acquired the rest is just labor. It is, however, a sort of labor that carries skill with it.

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Need for Quick Action

THERE is need for some definite steps to be taken in connection with solving the apprenticeship problem in the plumbing and heating industry of Canada. As in other countries there has been a noticeable drifting of young men to the "white collar" jobs in recent years, and the Adolescent Act which makes it compulsory for young persons to stay at school until they are past the age when the plumbing apprentice of years past was making his start, has made it more necessary to make the trade appealing.

Mr. Broomfield of Brantford, drove home a distinct note of warning concerning the dangers of neglecting this subject, and asked boldly what the plumbing trade were doing to justify the attention of apprentices.

The tendency for young men to drift away to more lucrative fields of endeavor such as auto mechanics or office work is an indication of a gradual raising of standards. If the plumbing trade as a whole was keeping up the same progress the apprenticeship problem would not be as acute as it is to-day. Many sanitary engineers are making progress, but unfortunately the craft is largely judged by the inefficient ones whose shortcomings bring them into bolder relief than the advances made by the progressive plumbers. It is to the improvement of this class that attention must be given.

* * * *

Central Heating

H. W. WOOD, the president of the Canadian Council of Agriculture, is reported as being somewhat of a pessimist because he says that present methods of doing business on the competition basis are ruinous.

The average reader is likely to ask the question as to where the connecting link is between such a statement and central heating. There are many links connecting such matters. For example, the gas fired boiler and its manufacturers are looked upon as competitors of the coal fired boiler. The hot air furnace is the enemy of the boiler and radiator manufacturer. The central heating plant would cut down the demand for warm air furnaces as well as the individual house heating boiler. Millions of tons of coal would probably be saved by the wholesale adoption of central heating plants. All along the line any real progress in heating would be a menace to some one or other selfish industry. But we are to have a

chance to see what central heating can do for a long suffering public if a despatch from Ottawa is to be taken seriously as the following goes to show:

"Upon the recommendation of the Dominion Fuel Board the federal government has decided to proceed immediately with investigations into the possible development of central heating plants."

There can be no doubt as to the result at least if a fair chance is given. Many heating engineers the world over are convinced that at some day or other central heating will be the order of the day.

In Battleford the utility commission have a splendid plant, one that is actually saving fuel and money too, and the tonnage of coal used per heating service based upon the B.T.U. furnished is very satisfactory.

Central heating is just one type of co-operation between neighbors. A community gets together and decides to establish a plant, or a city becomes interested in central heating and finds out what the public sentiment is regarding such an undertaking. This is not competition, because there would be no competition. Coal would be bought on a large scale, used on a large scale. No ashes to carry out, no smoke, no dirt and dust around the houses, all because the citizens have become imbued with the spirit of co-operation, and co-operation is the first basic sign of the heralding in of the true spirit of the brotherhood of man.

* * * *

Instruction for Plumbers

AN interesting move toward a solution of the apprenticeship question is that made by the Y.M.C.A. in the city of New York. Recognizing the need for workers in the building trades and observing the discontent of many men in "blind alley" office jobs, the Y.M.C.A. of New York has taken steps to provide courses of instruction. Instruction is now to be had in plumbing, contracting, plan reading, etc.

Such action was taken because of the fact that fifteen billion dollars worth of new construction was known to be awaiting workers. There was a shortage of labor in these industries partly because of the restriction of immigration. The remarks of Edward L. Wertheim, education director of the Y.M.C.A., are very interesting, in this connection. He says: "Parents are largely responsible for the surplus of white collar men. They want their boys to be in what they consider socially correct professions. And many of the young men are not fitted for office work. They chafe under the restrictions and confinement. Strong and active, they ought to get out and stretch their muscles. They are misfits in an office. Then, too, the matter of wages is a big consideration. From a meagre salary on an inside job, a well equipped mechanic can step out any day and get good wages. We are getting more applicants for the building trades than we can take care of in our limited quarters."

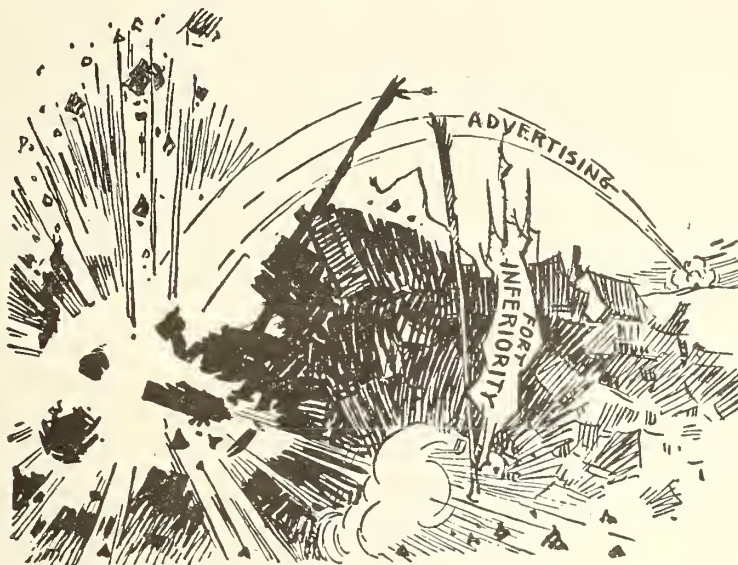
In offering this course the Y.M.C.A. prefers to take men under 35 who have had mechanical experience, preferably in the building trades, or men of mechanical aptitude.

The day classes call for a period of 100 hours of instruction over a period of 5 weeks—5 days a week from 1 to 5 p.m. There are evening classes from 7 to 10 o'clock three evenings a week. These extend over a 12-week period, to make up the 100 hours of instruction. In addition to these class hours it is possible for men taking the course to practice tile-setting from 9 to 12 in the morning if they so desire, without instruction.

There are some good pointers here for those contemplating the establishing of courses in Canada.

MINUTE MESSAGE

Written for Sanitary Engineer by FRANK STOCKDALE
(General Selling Series)



Advertising—the Artillery of Business

NO MODERN nation would think of waging war without artillery and machine-guns. Or without aeroplanes, entrenchments and bombs. An army that went into battle with all the equipment but the artillery would be under a tremendous handicap.

There are many plumbers, however, who battle against competitors who advertise and never seriously consider using advertising as an effective weapon for themselves.

In the world war, aeroplane was met with aeroplane; bayonet with bayonet and artillery with artillery. The law of conflict prescribes and demands that no modern weapon be omitted from the army's equipment, and this law applies to business as well.

Plumbers who are losing trade to other forms of competition, or to aggressive local advertisers, should use a like weapon—ADVERTISING—if they expect to meet that competition and build their business.

Is the "artillery" of your competitor dropping shell after shell within your "battle line?" Is it taking heavy toll against your business? Can you hold out against this "barrage" with your present "equipment?"

The only effective way you can defeat the enemy is by using advertising, good advertising, persistent advertising.

Advertising is the Artillery of your business—SHOOT!

THINK IT OVER—APPLY IT IN YOUR BUSINESS

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News Notes From Coast to Coast

Doings in the Plumbing and Heating Industry

BUSINESS CHANGES

Kenora, Ont.—A. Cotter, plumber, has been succeeded by Thos. J. Cotter.

Vermilion, Alta.—Northern Hardware Co., Ltd., have added tinsmithing, plumbing and heating to their business, under the direction of L. M. Hunt.

NEW FIRMS

Belleville, Ont.—Howe & Hagerman have commenced a new plumbing and heating business at 191 Front St., Belleville, Ont.

CHANGE NAME OF FIRM

Guelph, Ont.—The Albert W. Smith Co. Ltd., has changed its name to Guelph Plumbing and Heating Co. Ltd.

MOVES TO NEW PREMISES

Ingersoll, Ont.—D. N. Flander, plumbing, stoves, tinware, etc., has moved to new premises lately vacated by Booth Bros.

OBITUARY

David Robb, for many years employed with the Bennett & Wright Company, Toronto, in the steamfitting department, died at his residence.

Wesley Knight, vice-president of the Dominion Sanitary Pottery Co., St. Johns, Que., died at his home in that city. Mr. Knight was 71 years of age, and had been a resident of St. Johns for a number of years engaged in the pottery business.

Oshawa.—William E. Bramhall, 51 years of age, a prominent local plumbing contractor, dropped dead while at work in his store on King Street west. He had been in good health since recovering from an attack of influenza several weeks ago. Mr. Bramhall was born in Drayton, and for many years was a resident of Toronto. He had been in business in Oshawa for the past ten years.

MAY BE \$12 A DAY PLUMBER IN FUTURE

Vancouver.—Talking to one of the leading plumbing contractors here this week, it was pointed out to Sanitary Engineer, that the active 1923 development will be seen in the downtown areas, whereas last year it was confined largely to the outskirts and the municipality of Point Grey. This season larger works are under way and projected along the waterfront.

He referred to the ever-advancing tendency of prices and expressed the opinion that a twelve-dollar-a-day plumber would be common in the near future.

This condition will be made necessary, he said, on account of the departure of skilled artisans to the United States where building was improving rapidly in California; coupled with the fact that plumbers' apprentices have been a scarcity during the last few years. During the last week brass taps were advanced 35 cents each and water bowls \$2.60 each. Other articles in the stock of a plumbing store have been advancing similarly, particularly brass and copper and in some instances, financing has become difficult.

VANCOUVER PLUMBING BY-LAW APPROVED

Vancouver, B. C.—Amendments to be incorporated in the plumbing by-law, which is undergoing revision, were approved by the civic health and building committee. Under the new regulations the use of lead waste pipes will be permitted; to safeguard the sewers from danger of explosion traps or sumps, approved by the city engineer will have to be installed where obnoxious trade waste, including gasoline is used; a special trap must be used when fatty substances are used; there will be special requirements for dental waste and for photographic and engraving establishments.

RECOMMEND SEWERS FOR CAMPBELLFORD, ONT.

Campbellford, Ont.—According to the report, recently filed with the Town Council, of the investigation of the wells and other sources of water supply in Campbellford, which was made by officials of the Provincial Board of Health last November, samples of water were taken for analysis from 263 wells.

Of these, three of the bottles containing samples were broken in transit. Thirty-seven of the samples showed no contamination, these in nearly every case being from wells that were drilled and piped. One hundred and sixteen showed slight pollution and 107 showed pollution of 20 B. coli or over per 100 c.c.

The recommendation made by the Provincial Board for the improvement of sanitary conditions in town included:

"That the municipality install a liquid chlorination apparatus.

"That the municipality have plans prepared for a comprehensive scheme of sewers and sewage disposal which can be installed a little at a time as the need arises and which will ultimately give the town a complete system."

WILL MANUFACTURE HEATING DEVICE

Swift Current, Sask.—One of Swift Current's popular and successful young business men in the person of Frank A. Hutchinson, of the plumbing and heating firm of Hutchinson & Morrison, has taken his departure for Toronto where he will embark in the manufacture of a heating device of his own invention, the Hutchinson gas-tite furnace.

For the past year or so the new furnace has been manufactured at the Hutchinson & Morrison plant through the organization of a local company. The local field has been found too confined for manufacturing on the large scale that is contemplated.

PRESIDENT OF PORT HOPE SANITARY MFG CO SPEAKS OF OUTLOOK

Discussing conditions and prospects, President L. M. Wood, of Port Hope Sanitary Mfg. Co., made the following statement at the company's annual meeting: "The outlook for 1923 is encouraging and indicates a continued demand for enamelware. The prices of raw materials show a tendency to rise. If prices generally remain within reasonable bounds, the prospects are that 1923 will be a good building year."

Officers and directors for the ensuing year are as follows: L. M. Wood, president; F. Armstrong, vice-president and general manager; W. D. Ross, Robert Fleming, M. L. Davies, R. J. Cluff and W. J. Cluff, directors.

SUGGESTS CENTRAL HEATING FOR ORILLIA

Orillia, Ont.—At the Board of Trade meeting F. H. Horne introduced the question of a central heating system for the business section of the town. The question had impressed him very forcibly, and he had little doubt of its feasibility, and was satisfied if properly installed it would mean economy for all who were fortunate enough to be connected up to it.

Briefly outlined the project would be to build a station as near centre of business section as possible, where the heat would be generated in steam boilers, and hot water sent out through large mains at a temperature of 140 degrees. Each place of business taking the heating service would require to be properly piped and fitted with radiators, and connected with the main. The amount of heat sold to each consumer would be on a meter basis.

Mr. Horne believed there would be great economy, the present cost of heating probably being reduced one-half.

Manitoba Sanitary Inspectors Meet

City Will Have to Do More in the Matter of Sewage Disposal and Better Houses Must be Built

WINNIPEG, Man.—The Manitoba branch of the Sanitary Inspectors' Association of Canada held their fourth annual social evening in the Hotel Majestic, when they were addressed by Prof. R. C. Wallace on the subject of state medical aid. E. W. J. Hague, chief sanitary inspector of Winnipeg, and president of the association, asserted that Winnipeg would have to do more in the future than it was doing in the matter of sewage disposal, and that better houses should be built with better specifications regarding warmth and sanitation.

There were about 40 guests present. Ald. W. B. Simpson presided, being supported by Mayor S. J. Farmer, Dr. A. J. Douglas, Dr. M. Finkelstein and others.

In replying to the toast of the city of Winnipeg, proposed by J. W. Richardson, of Transcona, the mayor said poverty was one of the big problems they had to settle. If they could apply

to that problem the same principles that governed the sanitary inspectors of the health department, he thought the problem would quickly be solved and radicalism would very largely disappear. It was only by becoming radicals in the true sense of the word that they more quickly solved the problems facing them, and a sanitary inspector was a real radical as he sought to get to the root of things. It was the duty of any elected body to look after the requirements of the mass and not the wants of a few persons, and although they did not always agree on the methods to be adopted, the city council members were working toward that ideal.

Other toasts included the Sanitary Inspectors' Association of Canada and The Guests and during the evening songs and readings were given by A. Officer, J. McHardy, H. G. Trigg, B. C. Brough and G. Hanby.

CHANGE IN MUNICIPAL BYLAW ADDS \$1,700 TO COST OF PLUMBING

Windsor, Ont.—A change in the plumbing bylaws of the city of Windsor, which had not been generally known at the time the plans for the Wyandotte school addition were prepared, will cost the Board of Education an extra \$1,700, unless the Windsor council can be prevailed upon to forego enforcement of the bylaw.

The new bylaw, which had been on the books since a year ago, without anybody but the plumbing inspector knowing about it, requires the use of iron pipe underneath the building, for carrying away storm water from the roof, instead of the vitrified clay pipe that is generally used for this purpose.

PLUMBERS SEEK INCREASE

Winnipeg.—International union plumbers and steamfitters in Winnipeg are awaiting overtures to resume wage negotiations from the Builders' Exchange, according to R. C. Neil, business agent of Local 254. He intimated that the union members had submitted their proposals to the master plumbers some time ago and added that the men were firm in their demand for \$1.25 an hour. This rate, Mr. Neil declared, had already been established in Chicago and other cities across the border which precluded union here from accepting a lower wage. The membership in Winnipeg, he said, had been materially depleted due to a continued movement to other points where wages were more favorable. To offset any further exodus it was essential that wages be established equal to that of these competing centres, Mr. Neil said.

VANCOUVER WILL BUILD CONVENIENCES

Vancouver, B. C.—Three underground sanitary conveniences will be constructed in the business district of the city shortly, according to a recommendation of the civic health and building committee. One will be in the centre of Georgia Street, near Granville Street, another in the centre of Hastings Street at the post office west of Granville Street, and the third near the corner of Main and Hastings Streets the exact location to be determined later.

WILL HEAD PLUMBERS' BASEBALL TEAM

Windsor, Ont.—Gordon Finney, star flinger of the I. O. O. F. team of last year and this year with the Temples, will handle the destinies of the Plumbers' and Steamfitters' team in the Border Cities Industrial League. Finney, besides being a pitcher of the first order, has probably played more baseball than any manager in the Industrial loop and there is every reason to believe that the Plumbers will be a big factor in the race this year if the material is available, and it appears to be at present.

The club will hold an important meeting at the Plumbers' Hall, 61 Pitt Street, when plans for the approaching season will be discussed. All interested in the plumbing and steamfitting business are invited to attend this meeting.

O. W. Fuller, 332 King St., London, Ont., wants prices on hot air heating, plumbing and electrical equipment for new \$6,000 residence.

Western Ontario News

John Hayman & Sons, 432 Wellington St., London, Ont., want prices on steam heating, plumbing and electrical work for new \$100,000 apartment suite.

Dr. Taylor, Wallaceburg, Ont., is interested in prices of heating, plumbing, and electrical equipment for new \$10,000 residence.

Work on a new chlorinating system in connection with the waterworks at Goderich, Ont., is expected to proceed shortly.

L. Rosenblood, 372 Ottawa St. N., Hamilton, Ont., wants prices on hot water heating, plumbing and electrical work for new \$15,000 store and apartment to be build in the spring.

Eggett & Company, of London, Ont., have been awarded the plumbing and heating contracts for the new \$50,000 auto show rooms being erected for Middlesex Motors, Limited.

Arch. Wm. G. Murray, Dominion Savings Bldg., London, Ont., is preparing plans for new \$50,000 addition to school at Hanover, Ont., and will shortly want prices on heating and plumbing.

Dr. U. B. Shantz, 39 King St. W., Kitchener, Ont., contemplates erection of ten residences to cost \$50,000. Interested in prices heating, plumbing and electrical equipment.

Work is proceeding rapidly at Kitchener, Ont., on a new plumbing shop and show rooms for W. Battler on College St., close to the main business section.

Architect L. G. Bridgeman is preparing plans for a new \$8,000 residence for Hugh Roland, Dufferin Ave., London, Ont. Prices wanted on hot air heating, plumbing and electrical work.

A. M. Piper, City Hall, London, Ont., wants prices on steam heating, plumbing and electrical work for new \$50,000 registry office on which work is to be started shortly.

Perfect Knit Knitting Mills, Listowel, Ont., M. K. Becker, manager, is preparing plans for \$100,000 addition to its plant and will want prices on heating, plumbing and electrical equipment.

Ben Noble, of the firm of Noble and Rich, has been elected chairman of the Finance Committee of the Public Library Board, at London, Ont., and the board's representative to the Western Fair Committee.

Plans are being prepared for two new stores and apartments to cost \$25,000 for G. A. Brickenden, London Loan Building, London, Ont. Prices will be wanted on heating, plumbing and electrical equipment.

Questions and Answers Regarding Plumbing and Heating Practice

Interesting Queries re Steam Boilers

Editor Sanitary Engineer:

In your opinion what is the best and most suitable steam boiler for heating purposes?

1st. To overcome soda water.

2nd. To overcome water lifting out of boiler.

3rd. And any other advantages. We do not expect you to specify one particular boiler and get you in wrong.

4th. Should all steam mains be covered with asbestos covering?

5th. What is the general cause of water lifting in steam boilers? If the plant has lots of head room?

Porteous Hardware Co., Ltd.
Grand Prairie, Alta.

Answer.—As to our opinion as to what boiler is best for steam heating. There is very little to choose from any standard boilers on the market. But, if our opinion had been asked, giving certain conditions, for example: For residences, we would state that any cast iron round or square boiler with liberal steam space would be o. k. For schools, office or factory buildings twin sectional cast iron boilers, piped in such a way as to be able to use one boiler at once or the two. Steel tubular, firebox, or smokeless down draft boilers are alright.

It is seldom that boilers of themselves are faulty, the trouble, as a rule, is either with the chimneys or the system of piping. 1st. As regards the overcoming of "soda water," we assume that this question is meant to refer to lime depositing. This condition, too, has nothing to do with the boiler. When water is highly charged with lime, a water softening compound should be used and all condensation be returned to the boiler. No waste should be permitted. Once water has been boiled, and turned into steam, only one charge of lime can be formed in the boiler. If soft water is at all available it should be used for the purpose of using in the steam heating boiler.

As stated above, most boilers now on the market are reliable, and frankly there is very little to choose between one or another, with possibly one or two exceptions, viz.: Fire box and self feeding boilers, or those in which some special construction is embodied.

Answering query 4, we would strongly advise that all mains or returns be covered, and the boiler, too, should also be covered. Just to illustrate what percentage of heat is lost by not cover-

ing pipes the accompanying table will be of value. By way of explanation it should be noted that when a certain per cent. of heat is transmitted from piping, radiator or boiler, and such heat does not require to be thus transmitted, the heat is looked upon as "heat loss." Therefore, the table which, is the result of very careful tests by Prof. Carpenter, is looked upon as being very reliable.

It will also be noted that to paint radiators with white paint a loss of 5 per cent. is incurred, while by painting radiators or pipes with black asphaltum the radiating power is acutally increased by 5½ per cent., while painting radiators or piping with drab lead paint the efficiency of a radiator is increased over eight and one-half per cent.

5th. The lifting of water from a steam boiler is due to faulty piping as a rule, or, in a two-pipe job a steam supply valve has been closed, leaving a return valve open. Then a partial vacuum is set up which draws the water from some other return line. Faulty installations, twin boilers without equalizing pipes, pockets in piping, stoppage in return lines, all will have a bearing upon the trouble referred to.

Kind of covering	Relative Amount of Heat transmitted	
Naked pipe	100	p. c.
Two layers asbestos paper		
1 inch hair felt and canvas cover	15.2	p. c.
Two layers asbestos paper 1 inch hair felt	17.0	p. c.
Hair felt sectional covering, asbestos lined	18.6	p. c.
One thickness asbestos board	59.4	p. c.
Four thickness asbestos paper	50.3	p. c.
Two layers asbestos paper	77.7	p. c.
Wool felt asbestos lined	23.1	p. c.
Wool felt with air spaces		
asbestos lined	19.7	p. c.
Asbestos and sponge	18.8	p. c.
Asbestos and wool felt	20.8	p. c.
Magnesia, moulded, applied in plastic form	22.4	p. c.
Magnesia sectional	18.8	p. c.
Mineral wool sectional	19.3	p. c.
Roch wool, fibrous	20.3	p. c.
Fossil meal, moulded ¾ inch thick	29.7	p. c.
Painted with black asphaltum	105.5	p. c.
Painted with light drab lead paint	108.7	p. c.
Glossy white paint	95.0	p. c.

PEDAL ACTION VALVES

Kindly give us your opinion on the following. We have just installed a basin fitted with pedal action valves which, of course, have in their make up a spring and when the operator releases the pressure from the pedal the valve closes with a buck and often when there is very little pressure on the pedal there is considerable vibration causing a rattling noise. Would air cushions remedy the above?—Ontario Subscriber.

AGREES TO LOAN PLUMBING INSPECTOR

Ottawa, Ont.—A few persuasive and tactful remarks by R. Blackwell, of the architect firm of William and W. R. L. Blackwell, of Peterborough, induced Ottawa's Board of Control to break an established rule.

Mr. Blackwell appeared before the Board to back up a letter from his firm which solicited the "loan" of Ottawa's plumbing inspector, Mr. Stephen Daughtry, to conduct a smoke test on the fine new building erected in Brockville, of which Mr. Blackwell's firm were the architects. His request was granted by the Board, but not before Mr. Blackwell made out a very nice case for the application.

"It's a bad precedent for Ottawa to allow its plumbing inspector to go running around the country making smoke tests for private firms," remarked one controller when the letter was read.

Alderman T. H. Brewer: "I think it reflects credit on our inspector's ability."

TORONTO SUBURBS TO HAVE SEWERS

Marking the progress of the district surrounding Humber Bay is the installation of the sewers and water mains throughout the entire section. This work has been under way for the last three or four months but up to the last month little headway had been made.

Since then, however, a new contractor has taken over the work and with warm weather drawing near and the frost rapidly leaving the ground it is expected that there will be no more serious interruptions. The district through which this water system is being run is one of the least heard of and fastest growing suburbs of Toronto. In the last year hundreds of little homes have sprung up in the section between Humber River and Mimico Creek. Most streets in this district already have electric lights

The Greatest Opportunity



—ALL ABOARD

ever offered the
**Canadian Plumbing
And Heating
Trades**

HELPS OF THE NATIONAL TRADE
EXTENSION BUREAU OF THE
PLUMBING AND HEATING
INDUSTRIES TO BE AVAILABLE IN
CANADA FOR THE FIRST TIME.

A New Era Dawning
FOR

**Canadian Plumbers and Heating
Engineers**

(READ ABOUT IT ON THE NEXT PAGES)

A Trade Extension Service Heating Engineers Through *Plumber and Steamfitter*

WHAT THIS SERVICE HAS FOR YOU

"COPY" FOR EFFECTIVE ADVERTISING

Copy suggestions to increase the effectiveness of the sanitary and heating engineer's advertising is an important help.

ELECTROS OF ILLUSTRATIONS AT COST

Attractive illustrations to drive home the messages contained in the suggested advertisements will brighten the ads at little expense. Electros of these illustrations will be provided readers of Sanitary Engineer at cost.

TIMELY WINDOW DISPLAYS

Supplementing the illustrated articles on various plumbers' businesses as appearing in each issue, Sanitary Engineer will reproduce, in connection with this new service, suggested window displays to link up with "Bath in every home" or other such campaigns. These will be accompanied by full description of material used and preparation.

COLLECTION LETTERS

From time to time some suggested forms of collection letters will be given, and special assistance will be extended to any particular reader on special application.

Use of the Cash Discount

Accounting Methods for Plumbing Shops

Developing Prospects

These Big New Features Added To
Regular Departments Starting With

April 15 Issue "Sanitary Engineer"

CASH IN ON THE

to Canadian Plumbers and gh "Sanitary Engineer, tter of Canada"

A NUMBER of unsuccessful attempts have been made to start a Trade Extension Bureau Service in Canada on a somewhat similar scale to that which has been so helpful to sanitary and heating engineers in the United States.

NEGOTIATIONS have been going on for some time between Sanitary Engineer, Plumber and Steamfitter of Canada and the National Trade Extension Bureau of the United States and an arrangement has just been completed whereby many of the helpful features of this Bureau will be extended to the Canadian plumbing trade, through the medium of Sanitary Engineer.

WHILE Sanitary Engineer has for many years been giving to the Canadian plumbing trade a great many of the features provided in the Trade Extension Service, there are important new features which will be introduced to readers of Sanitary Engineer commencing with April 15 issue.

MANY Canadian plumbers have endeavored individually to link up with this service in the past but the National Trade Extension Bureau had made no plans for entering Canada with their many services and up until now this service has not been available to the Canadian trade.

What The Trade Extension Bureau is

THE National Trade Extension Bureau is an organization for providing sanitary and heating engineers of the United States with all possible help for the developing of business and placing of individual businesses on a better basis.

The directors of the Bureau are mostly men experienced in the plumbing trade and Wm. J. Woolley, secretary, manager of the Bureau, has a large plumbing and heating business under his name. Mr. Woolley was the chief speaker at the banquet of the Ontario Society D.S. & H.E. convention three years ago and his explanation of the work of the Bureau brought scores of requests from Canadian plumbers for the extension of this service into Canada.

Until now this service has not been available to Canadian plumbing and heating engineers.

Practically all phases of plumbing and heating work are dealt with from the standpoint of management, technical problems, office routine, publicity matter, development of trade, etc.

ner, Plumber & Steamfitter"

READ THE LAST PAGE

Your Chance To Get \$10,000 Worth of Service For \$2.00

IF any plumbing or heating concern in Canada set out to duplicate the art work and engravings, or secure the selling and administration ideas and helps given in this service alone it would cost them over \$10,000.

ALL this service is available to YOU in addition to the big regular service now extended through each issue of Sanitary Engineer.

WE can show you where scores of plumbers have made hundreds of dollars by using this service at \$2.00 per year.

All of this service will be available to Canadian plumbers through Sanitary Engineer in addition to all the other big regular features.

BIG DOUBLE-HEADER ISSUES START WITH APRIL 15TH SANITARY ENGINEER

TEAR THIS OFF AND SIGN—or sign the enclosed return card and share with a thousand other plumbers this helpful service for the next year at a cost to you of less than 9 cents an issue.

Sanitary Engineer
143 University Ave., Toronto

_____ 1923

Sirs:

Send me Sanitary Engineer and be sure to begin with the April 15th issue. I don't want to miss it.

I am enclosing \$2.00 for one year or \$5.00 for 3 years subscription, or you can bill me for one subscription price.

Market Conditions and Tendencies

Price Trend on Sanitary and Heating Supplies

Markets at a Glance

PPRICE changes in all branches of the heating and plumbing trade have been fairly numerous within the last three months. The adjustments of the week, however, have surpassed in importance those of most of the preceding weeks. Prices on boilers and radiators are in a general revision to higher levels and the advance is from 7 to 15 per cent. Mechanical rubber goods have followed the lead of other rubber products and an advance of 10 per cent. is in effect. Zinc sheets have also recorded a gain in price amounting to 1½¢ per lb., and some grades of solder are quoted at slightly higher levels.

Plumbers' brass goods are quoted at slightly higher levels from those formerly in effect as are also dart unions, stove and tire bolts. Galvanized sheets, corrugated sheets, black and blue annealed sheets have all reflected the firm trend recently noted in primary sources and have advanced in price from 10 to 15 cents per cwt.; an advance of from 1 to 3 cents per lb. has also taken place in quotations on cotton waste. Lower discounts on fittings have been put into effect advancing quotations on plugs, bushings and unions by about 5 per cent.

Montreal Markets

MONTREAL, March 29.—Higher levels still continue to be the case wherever price revisions are reported during the past two weeks. From present indications in primary metal market, recent advances in which have been largely responsible for the increased prices on various products, further advances upon the new quotations are unlikely, the primary metal markets having assumed a more stable tone, with a slight tendency towards easier prices during the past week.

One important change noted this week is the revised discount on radiation goods. On radiators, both hot water and steam, there has been a considerable cut in the discount, while on boilers the reduction in discount reaches about 12 per cent. on all lines. Malleable and iron fittings discounts have been altered in a similar manner, the change here varying from three to five per cent. while in compression goods, discounts on bath cocks, waste cocks and traps have been revised in the same direction.

Closet combinations are about \$1 higher on most lines under new quotations but no change has been made in the price of tanks, seats or bowls separately. In keeping with a general upward revision in the cotton products market, all lines of cotton wastes have advanced, the new prices being from one-half to three cents higher than those previously in force.

TRADING IN ENAMELLED WARE IS STILL LIGHT

Montreal.

Trading remains light in enamelled ware this week, with prices unchanged. They remain as revised early in the month, at the following levels:

ENAMELED WARE—

Sinks, roll rim—			
18 x 30		\$23 00	
Sinks, flat rim—	1 only	2 only	3 only
16 x 24	\$ 7 50	\$ 7 40	\$ 7 30
18 x 30	8 70	8 60	8 50
20 x 30	9 90	9 80	9 70
Bath tubs, roll rim, 4, 4½, 5 feet, 24 to 30 in. wide			51 40
Bath tubs, 5½ feet.			57 10
Lavatories—			
17x19 in. Apron F139 or P4045.....			15 30
18x24 in. Apron F164 or P3845 or P3847			23 60
18x21 in. Apron F169 or P4205.....			17 60
17x19 in. Roll rim. F241 or P4345.....			12 60
Less 30 per cent.			

CORRUGATED SHEET MARKET IS REPORTED FIRM

Montreal.

A satisfactory condition in the corrugated sheet market is reported this week, trading on spring deliveries being good with some business being placed for later shipment. The prices are firm at the levels which came into effect some weeks ago. Local quotations are as follows:

CORRUGATED SHEETS—	Per 100 sq. ft.
No. 28 gauge	7 00
No. 26 gauge	7 50
No. 24 gauge	10 00
No. 22 gauge	12 50
No. 20 gauge	14 00
No. 18 gauge	19 00
Less 10 per cent.	
Lighter than 24 gauge and wider than 27 ins., 75 cents per square extra.	

CLOSET COMBINATIONS MAKE UPWARD MOVE

Montreal.

Several advanced prices are noted in this week's quotations on closet combinations, the average increase being \$1.00. Practically all lines are advanced. There is no change in prices on bowls, seats or tanks separately. Trading is fairly light at the following quotations:

CLOSET COMBINATIONS—

Low Down Outfits,	each
Closet, standard outfit, oak.....	24 00
Do., post hinge seat	25 00
Do., oak vitro or Pussyfoot.....	24 50
Do., post hinge seat	25 50
Do., mahogany vitro or Pussyfoot, post hinge seat and cover	28 00
Do., vitreous china, oak post hinge seat and cover	29 00
Do., vitreous china, mahogany post hinge seat and cover	30 00
Do., white vitro or Pussyfoot, mahogany post hinge seat and cover	30 00
Do., enamelled iron tank, oak post hinge seat and cover	29 50
Do., enamelled iron tank, mahogany post hinge seat and cover	29 50
Add for ¾" valve on supply pipe.....	1 25
Add for spud	0 60
Add for reverse trap bowl	1 50
Add for syphon jet bowl.....	7 00
Deduct for supply pipe	0 80
Deduct for floor hinge	0 60

CLOSET BOWLS—

Richefeu bowl	8 00
Washdown bowl with spud	9 50
Reverse trap bowl with spud	9 50
Syphon jet bowl with spud.....	15 00

CLOSET SEATS—

Oak post hinge seat and cover.....	3 85
Oak wood strip seat and cover.....	3 50
Mahogany finish post hinge seat and cover	4 05

CLOSET TANKS—

Low down, oak vitro or Pussyfoot with fittings less seat	13 20
White vitro or Pussyfoot with fittings, flush elbow and supply.....	15 65
Vitreous china tank with fittings, flush elbow and supply	18 00
Enamelled iron with fittings, flush elbow and supply	18 00

FITTINGS DISCOUNTS SUBJECTED TO REDUCTION

Montreal.

As foreseen in the last issue, new higher quotations have been announced on pipe fittings, the revision taking the form of a reduction of discounts. On malleable fittings the discount is three

per cent. less than formerly, while on cast iron fittings, plugs, bushings and unions the cut is five per cent. This brings the discounts to the following levels, at which trading is said to be very firm locally:

PIPE FITTINGS—	
Cast iron fittings	17½%
Plugs, cast iron	17½%
Do., solid	17½%
Do., countersunk	17½%
Bushings, cast	20%
Do., malleable	20%
Unions	35%
Flanged unions	17½%
Flanged fittings	27½%
Dart unions, black, ½ to 2 in.	33½%
Do., ½ in., 2½ in., and larger	23%
Do., galv. add to black	30%
Nipples, ½ to 4", close and short	50%
Do., long	55%
Do., 4½ to 8", close and short	40%
Do., long	45%
Couplings, 4" and under	25%
Do., 4½" and larger	5%
Malleable Fittings—	
Piece list effective June 1st, 1922. Discount 65 per cent.	

SOME ADVANCES RECORDED IN COMPRESSION GOODS

Montreal. Several lines of compression goods have undergone revisions this week, the change in each case being by a reduction of discount. Bath cocks have been altered from 41 per cent. to 38 and 40 per cent. and waste cocks from 56 per cent. to 54 and 42 per cent. The only other change is in N. P. "O" and "S" traps where the discount is changed from 40 per cent. to 34 per cent. The following are quotations in force locally:

VALVES AND BIBES—	
Compression work, standard	45%
Fuller work, standard	30%
Quick opening, compression bibbs	43%
Bath cocks, quick opening	38%
Bath cocks, compression	40%
Basin cocks, quick opening	46%
Flatway stop and waste cocks, standard	54%
Roundway stop and waste cocks, std.	42%
Brass steam cocks, standard, ¼ in.	50%
Radiator valves, standard	55/25%
Do., removable discs	55/25%
Globe, angle and check valves, std.	25%
Gate or straightway	25%
Emco globe valves	33%
Emco check valves	33%
Jenkins globe, angle, check and swing check	5%
Jenkins gate or straightway	16%
Jenkins iron body, globe and angle	15%
Jenkins iron body, gate	25%
N. P. "O" and "S" traps	34%

SPRING TRADING NOTICEABLE IN EAVES AND CONDUCTORS

Montreal. Business is reported on the up-grade in the eavestrough and conductor pipe market this week, the advent of spring giving a boost to this and other building lines. The market remains firm at prices which have been in effect for several weeks past. They follow:

EAVESTROUGH—	
O. G. round and half round, per 100 ft. 3 in., \$16.90; 10 in., \$18.70; 12 in., \$22.20; 15 in., \$35.50; 18 in., \$45.00.	
O. G. Square bead, per 100 ft: 8 in., \$15.90; 10 in., \$17.70; 12 in., \$21.20; 15 in., \$34.50; 18 in., \$44.00.	
Discount 65 and 5 per cent.	
CONDUCTOR PIPE—Round, Plain and Corrugated, per 100 ft.: 2 in., \$18.40; 3 in., \$22.30; 4 in., \$29.60; 5 in., \$48.00; 6 in., \$58.80.	
Discount 65 and 5 per cent.	
CONDUCTOR ELBOWS—	
Plain or corrugated, price per doz 2 in., \$5.25; 3 in., \$6.00; 4 in., \$10.50; 5 in., \$24.00; 6 in., \$29.00.	
Discount 55 and 5 per cent.	

NEW HIGHER QUOTATIONS GIVEN ON COTTON WASTES

Montreal. During the past week there has been a general upward revision in all cotton products, every line of cotton wastes being affected by from one-half to three cents per pound. The following are the new quotations:

COTTON WASTES—		Per lb.
Cream polishing		0 24
White, XXX extra		0 20
White, XX grand		0 18½
White, XLCR		0 17
X Empire		0 15½
X Press		0 14
Colored—		
Fancy		0 15½
Lion		0 14
Standard		0 12½
Popular		0 10½
Keen		0 08½
Wool Packing—		
Arrow		0 25
Axle		0 21
Anvil		0 17
Dominion W pers—		
White cotton		0 20
Colored cotton		0 13½

BAR PRODUCT MARKET STEADY WITH TRADING GOOD

Montreal. Spring trading in bar products is reported as active this week, dealers being busy filling orders booked early for spring delivery. There is no change in prices, the market remaining firm at recent advances. The following prices are quoted locally, although there is some indication that another slight increase may take place in the near future:

IRON AND STEEL—	
Common bar iron, 100 lbs.	3 65
Refined iron	5 15
Irish finish machinery steel	3 70
Mild steel	3 65
Single reeled machinery steel	5 00
Band steel	4 15
Sleighshoe steel	3 65
Spring steel	6 00
Tire steel	3 85
Harrow tooth steel	3 80
Toe caulk steel	4 55
Mining tool steel, per lb.	0 19
Black Diamond tool and cast steel, per lb.	0 19

NOTE.—Refined iron is approximately \$1.50 per cwt. over base, but fluctuates owing to unsettled market.

Band steel in scroll bundles, 50c per 100 lbs. extra.
Iron and steel 3-16 in. and thinner, 50c per 100 lbs. extra.

SCRAP METAL TRADING FIRM AT FORMER PRICES

Montreal. Business in the scrap metal market is reported to be quite firm this week with no changes in prices from those quoted earlier. The following are average prices being quoted by local dealers:

SCRAP MATERIALS—	
Automobile tires	0 50
Rubber shoes	0 03
Yellow brass	0 05½ to 0 06
Red brass	0 09
Light brass	0 04½
Scrap zinc	0 04½
Lead, heavy	0 05
Lead, tea	0 03
Light copper	0 08½ to 0 09
Heavy copper	0 11½
Wrought iron, R. Rd., No. 1, per gr. ton ..	12 00
Malleable scrap (ton)	10 00
Pipe scrap (ton)	7 00
Heavy melting steel	9 00
No. 2 busheling	3 00
Boiler plate	3 00 to 9 00
No. 1 machinery cast	20 00 to 22 00

SPRING TRADING IN ASBESTOS LATER THIS YEAR

Montreal. Trading in asbestos products is reported seasonable, the effects of the approach of spring being noticed, although local distributors state that the business is opening up later this year than has been the case for the past few years. There has been no change in prices, the quotations now in force having been quoted since the revision made late last autumn. They are as follows:

ASBESTOS PRODUCTS—		Off list prices
2 ply pipe covering		57½%
3 ply pipe covering		55%
4 ply pipe covering		50%
85% magnesia		40%
		Per bag
Boiler covering		\$1 50
		Per 100 lbs.
Asbestos sheathing		7 75

SHEET AND PLATE MARKETS REMAIN UNCHANGED

Montreal. There has been practically no change in the prices of sheets and plates during the past week. Owing to the purchase of stocks at varying prices there is still a fairly wide range of prices being quoted by local distributors and trading is reported to be firm. The following are the quotations being followed:

BLACK SHEETS—			
10 gauge, base	4 75	5 00	
12 gauge	4 85	5 00	
14 gauge	4 85	5 10	
16 gauge	5 05	5 15	
18—20 gauge	5 20	5 25	
22—24 gauge	5 20	5 35	
26 gauge	5 25	5 40	
28 gauge	5 35	5 60	
GALVANIZED SHEETS—			
		Queen's Head	Fleur de Lis
18—20 gauge	6 65	6 90	6 40
26 gauge	7 25	7 50	7 00
24 gauge	6 95	7 20	6 70
22 gauge	6 90	7 15	6 65
28 gauge	7 50	7 75	7 25

Other Brands—			
10½ oz.	7 25	7 50	
28 U. S. base	7 00	7 25	
26 U. S. base	6 60	6 85	
24—22 gauge	6 35	6 60	
20—18 gauge	6 15	6 25	
16 gauge	6 00	6 10	

Above prices are for ½ ton lots in English iron and 1000 lb. lots in American iron with an extra charge of 25c. for less quantities. Extra for sheets 3 ft. wide, 28 gauge and 10½ oz., 25c. per 100 lbs.

Further extra for sheets 4 ft. wide according to gauge.

TIN PLATE—		
20 x 28 x 100 lbs. basis		15 50
20 x 28 IC, 112s		16 00
20 x 28 IX, 112s		18 00
20 x 28 IXX, 56s		11 00
20 x 28 IXXX, 56s		12 00

TERNE PLATE—		
20 x 28 IC, 112s, 200 lb.		14 50
20 x 28 IC, 112s, 214 lb.		15 00

CANADA PLATE—		
Half bright 52s		5 50
Half bright 60s		5 60
Blued 52s		5 90
Blued 60s		6 00
Welsh, polished, 60s		7 35
Welsh, polished, 52s		7 10
Galvanized, 52s		8 00
Galvanized 60s		8 50

REDUCTION OF DISCOUNTS ON RADIATORS AND BOILERS

Montreal. A general upward revision in radiators and boilers is announced this week. The discount on hot water radiators drops from 51 per cent. to 44 per cent. and on

steam radiators from 52 per cent. to 45 per cent., while on wall radiators the discount is changed from 48 per cent. to 41 per cent. The revised discount on boilers is a cut of 12 per cent. on all lines but sizes 0 to 10 where it is 8 per cent. The market is firm at the new quotations which are as follows:

RADIATORS AND BOILERS—

Radiator list prices are for 1, 2, 3, 4 and 5 column radiators, per sq. ft.

45 in. to 38 in., \$1; 32 in., \$1.10; 30 in., \$1.15; 26 in., \$1.20; 23 in., \$1.26; 22 in., \$1.30; 20 in., \$1.36; 18 in., \$1.40; 16 in., \$1.50; 14 in., \$1.55; 13 in., \$1.60. Discount 44 per cent for hot water, and 45 per cent. for steam.

Wall radiators—5 ft., \$1.15; 6 ft., \$1.10; 7 ft., \$1.05; 9 ft., \$1.05; 12 ft., \$1.05; Discount 41 per cent.

Boilers—Round water boilers, sizes from 0 to 10, 52 per cent. off list. Square or sectional hot water or steam boilers, 15 in., 3 per cent. with Ontario Government trimmings, list. Square or sectional water boilers, 19 in. to 36 in., 8 per cent. Square or sectional steam boilers, 19 in. to 26 in., 5 per cent. Ontario Government trimmings, list plus 7 per cent. Square or sectional water or steam boilers, 48 in., list plus 10 per cent. With Ontario Government trimmings, list plus 13 per cent.

Round steam boilers, standard trimmings, 16 per cent. Ontario Government trimmings, 13 per cent.

F.o.b. Montreal, Toronto, Guelph.

SPRING SALES ARE GOOD IN CEMENT MARKET

Montreal.

Cement prices show no change from quotations given recently. Spring sales are reported to be good, reflecting in this respect the large amount of building which is to be done this summer. The prices now in force are as follows:

CEMENT—

Car load lots, per bag, F.o.b. steam cars 0 86
Per Bag, delivered 0 94
Less car lots, per bag, F.o.b. yard..... 0 94
Per bag, delivered 1 04
Less 5 per cent 1 04
Rebate of 20 cents for empty bags.

NO CHANGE IN BOILER TUBES; TRADING IMPROVING

Montreal.

There is only moderate activity reported in boiler tubes at the present time, though trading continues to improve slowly. There is a strong market, although prices remain unchanged, as follows:

BOILER TUBES—

	Seamless	Lapweld
1 inch	20 00	....
1¼ inch	22 00	....
1½ inch	21 00	....
1¾ inch	24 50	24 00
2 inch	21 50	20 00
2¼ inch	24 50	23 00
3 inch	29 00	24 50
3½ inch	34 00	31 00
4 inch	39 50	36 50
4 inch	50 00	45 00

Prices, per 100 ft., f.o.b. Montreal.

BOILER RANGE PRICES SHOW NO CHANGES

Montreal.

There is little activity recorded in the range boiler market, although trading continues satisfactory. Prices remain at the following levels:

RANGE BOILERS:—

5 Gallon	\$13.50
12 "	14.00
18 "	15.00
25 "	16.50
30 "	17.50
35 "	20.50
40 "	22.75
52 "	38.00
66 "	60.75
82 "	74.00
100 "	103.00
120 "	117.00
144 "	164.00
168 "	187.00
192 "	210.00

Std., less 40 per cent.; Ex. Heavy, 30 per cent.

of solder have also reached slightly higher levels.

LEAD AND ZINC GOODS—

Lead pipe, per 100 lbs., up to 2"	14 50
Do., 2" to 8"	15 50
Do., 8" and over	16 50
Lead waste, per 100 lbs.	15 50

Note—Lead pipe is subject to a discount of 10 per cent.

Lead traps and bends	15%
Lead wool, lb.	0 14½
Lead sheets, 2½ lbs. sq. ft. per lb.	0 12½
Lead sheets, 3 to 3½ lbs.	0 11¾
Do., 4 to 8 lbs. sq. ft. lb.	0 11½
Solder, guaranteed, lb.	0 33½ 0 34
Do., strictly, lb.	0 31¼ 0 36½
Do., commercial,	0 29 0 33¾
Do., wiping,	0 31 0 36½
Do., wire,	0 37 0 43
Zinc sheets, casks, lb.	0 12½
Do., do., less, lb.	0 13½

CORRUGATED SHEETS SLIGHTLY HIGHER

Toronto.

A slight adjustment in price is in effect on some weights of corrugated sheets, 18, 20, 22 and 24 gauges being quoted at slightly higher levels than those of recent reports. The list showing present quotations is given below.

CORRUGATED SHEETS—	Per 100 sq. ft.
No. 28 gauge	7 00
No. 26 gauge	7 50
No. 24 gauge	10 00
No. 22 gauge	12 50
No. 20 gauge	14 00
No. 18 gauge	19 00
Less 10 per cent.	
Lighter than 24 gauge and wider than 27 ins.,	
75 cents per square extra.	

QUOTATIONS ON COTTON WASTE CHANGE

Toronto.

Confirming recent reports of higher quotations in cotton basic markets, a slight change is in effect on cotton waste. The change is not so great as was expected that there is little variation in evidence in local quotations.

COTTON WASTES—

Cream, polishing	0 24
White, XXX	0 21
XX	0 18
X	0 17
XC	0 15½
XXX extra	0 20
X, grand	0 18½
XLGR	0 17
X, Empire	0 15½
X, press	0 14
Colored, No. 1	0 14½
No. 17	0 14½
No. 1A	0 13½
No. 1B	0 11½
Fancy	0 15½
Lion	0 14
Standard	0 12½
Popular	0 10½
Keen	0 08½
Above lines subject to trade discount for quantity.	

STOVE AND FURNACE PRICES MAY BE HIGHER

Toronto.

Quotations on stoves and furnaces for the fall are likely to be higher according to local information. The prices on these lines, it was pointed out, have been higher in American markets than were those of the Canadian manufacturers and the continually advancing costs of steel and iron products will be reflected in quotations on these lines as soon as present stocks are exhausted.

GENERAL ADVANCE IN PLUMBERS' BRASS GOODS

Toronto.

The advance noted in a recent issue in some lines of brass and nickel plated goods, has become general. The fol-

Toronto Markets

TORONTO, March 29.—Local market reports contain changes in many lines. Heavy trading continues to feature reports from primary sources and for the present at least little hope is held out for a reduction of any proportions to take place.

The more important changes noted in the local market development for some time past have centered around the steel and iron products with an occasional advance in other commodities. Recent developments however, have included lead, cotton, brass, copper and rubber goods which in turn have been reflected in prices on allied lines. Among the lines which have moved to higher levels during the week are dart unions, mechanical rubber goods, pig iron, boilers and radiators, force cups, stove and sink bolts and boxwood rules. There is also a substantial advance in effect on some lines of brass and copper goods. The popular advance has been about 10 per cent but in the case of radiators and boilers, the difference has been somewhat greater.

Generally speaking trade is well out in front of a year ago but the continued cold weather has had the effect of slowing up some branches of business and the building trade is feeling the need of warmer weather.

STOVE AND TIRE BOLT PRICES SHOW SLIGHT INCREASE

Toronto.

A slight increase is in effect on tire and stove bolts. The discount formerly quoted on tire bolts was 50 per cent. whereas now it is 42½ per cent. Stove bolt discounts which were 65 and 5 per cent. are now 62½ and 5 per cent. Sink

bolts are also subject to the discount governing stove bolts.

LEAD AND ZINC SLIGHTLY HIGHER

Toronto.

A slight adjustment is in effect in quotations on some lines of lead and zinc goods. Zinc sheets are higher in price by 1½c per pound and some grades

lowing list of changes now in effect shows the general nature of the advance.

BRASS GOODS—

No. 3825 Compression, complete with tails	3 75
No. 4 Std. Comp. Double Bath. No. 3829 F	4 46
Ditto with China Index. No. 3830F.....	4 92
Quick Opening—	
Brass handle on top, No. 3850 F.....	4 90
China handle on top, No. 3850 F.....	5 52
Brass handle on side, No. 3851F.....	4 95

(less Jewell's cup)	
China handle on side No. 3852 F.....	5 45
(less Jewell's cup)	
No. 4 1/2 Fuller, brass handle, No. 3862...	6 48
A2395 Mueller type Shower Faucet.....	9 25
3/8 in. N. P. Brass Supply Pipes.....pair	2 20
1/2 in. N. P. Brass Supply Pipes.....pair	2 30
1/2 in. Galvanized Iron Nickel Plated Supply Pipes.....pair	1 75
1 1/4 or 1 3/8 Overflow and Waste, 19 gauge, N. P. on rough.....	3 20
1 1/2 T.B.L. Overflow and Waste, 19 gauge, N. P. on the rough.....	4 15

LAVATORY FITTINGS—

Riley Basin Cocks China Index, per pair	7 00
Riley Jr. Basin Cocks, China Index, per pair	6 00
Adanac Basin Cocks, Brass Handle, No. 3632, per pair	4 68
Adanac Basin Cocks, China Handle, No. 3635, per pair	5 20
Quick Opening Basin Cocks, Brass Hdle. No. 3630, per pair	3 70
Quick Opening Basin Cocks, China Handle, No. 3633, per pair	4 28
Fuller No. 0 Basin Cocks, Brass Handle, No. 3650, per pair	4 10
Fuller No. 0 Basin Cocks, China Handle No. 3651, per pair	5 04
Midget No. 0 Basin Cocks, No. Index, No. 3623, per pair	3 14
Midget No. 0 Basin Cocks, With Index, No. 3623, per pair	3 45
3/8 in. N.P. Brass supplies to wall or floor	2 20
3/8 in. Galvd. supplies N. P.....	1 80
1 1/4 in. N.P.S. Traps to floor No Vent 20G No. 4458.....	3 46
1 1/4 in. N.P.S. Traps to floor with Vent 20G No. 4462.....	4 53
1 1/4 in. N.P.P. Traps. No Vent 20G No. 4450.....	2 74
1 1/4 in. N.P.P. Traps No Vent Toronto By-law No. 4450.....	2 97
1 1/4 in. N.P.S. Traps with Vent Toronto By-law No. 4462.....	4 98
1 1/4 in. N.P.S. Traps with Vent Toronto By-law No. 4462.....	6 67
2 in. N.P.S. Traps with Vent Toronto By-law No. 4462.....	14 00
Patent Overflow basin plugs.....	0 71
Pop up waste.....	5 00
Unique waste China Knob.....	5 50
Unique waste China Index.....	5 00
1 1/4 in. Deep Seal Trap No Vent.....	3 75
1 1/2 in. Deep Seal Trap No Vent.....	6 00
1 1/4 in. Elliptic Trap.....	6 50
1 1/2 in. Elliptic Trap.....	9 00
Whirlpool N.P. Traps list prices less.....	15%
1/2 in. Lever Handle. Stop and Waste, solid key, No. 3969.....	0 83
1/2 in. Lever Handle, Stop and Waste, pin cheek, lose key, No. 4032.....	1 04
1/2 in. Lever Handle, Stop and Waste, pat. cap. loose key, No. 4044.....	1 21
1/2 in. Boiler Drain Cocks 3571.....	0 80

FORCE CUPS SLIGHTLY ADVANCED IN PRICE**Toronto.**

Following the general advance in rubber prices, an adjustment has been made in prices on force cups. The new quotations are slightly higher than old levels being now quoted as follows:

FORCE CUPS—	Per doz.	Per doz.
		Large
No. 1.....	4 10	4 60
No. 2.....	5 15	6 25
No. 3.....	6 70	
Handy Andy No. 1 short.....	3 35	
Do., No. 2 short.....	4 00	
Do., No. 1 long.....	4 50	
Do., No. 2.....	5 25	
Wood handles for force cups short, doz.	0 30	
Wood handles for force cups, long, doz.	0 75	

NEW DISCOUNTS IN EFFECT ON DART UNIONS**Toronto.**

New discounts are in effect on dart unions which has resulted in an advance

of about 5 per cent. on local quotations. Discounts now in effect are as follows:

DART UNIONS—

1/4 inch to 2 inch inclusive.....	27 1/2%
1/8 inch and 2 1/2 to 4 inch.....	10 and 10%

CLOSET COMBINATIONS FIRM IN PRICE**Toronto.**

There is no change noted in this week's report on closet combinations, seats and bowls. The market in this line is reported strong with the tendency pointing to higher levels on some lines.

CLOSET COMBINATIONS—

	Each
Oak, Wood Tank, Oak W. S. Seat and Cover	24 00
Oak Vitro Tank, Oak W.S. Seat and Cover	24 00
Oak Pussyfoot Tank, Oak W.S. Seat and Cover	24 00
Oak Wood Tank Oak P.H., Seat and Cover	24 50
Oak Vitro Tank, Oak P.H. Seat and Cover	24 50
White Vitro Oak Woodstrip Seat and Cover	24 50
White, Pussyfoot Oak Woodstrip, Seat and Cover	25 50
White Pussyfoot, Woodstrip Seat and Cover	25 50
White Vitro Tank, Mahog., P.H. Seat and Cover	26 50
White Pussyfoot, Mahog., P.H. Seat and Cover	26 50
White Vitro or Pussyfoot, oak, P.H. Seat and Cover	26 00
Mahog. Pussyfoot, Mahogany P.H., Seat and Cover	27 00
Vitreous China Tank, Oak P.H., Seat and Cover	27 00
Enam. Iron Tank, Oak P.H. Seat and Cover	28 75
Vitreous China Tank, Mahog., P.H. Seat and Cover	29 00
Enam. Iron Tank, Mahog., P.H., Seat and Cover	28 75

ADDITIONS OR REDUCTIONS ON ABOVE—

If supplied less bend or offset, deduct..	0 50
If supplied with reverse trap bowl, add	1 50
If supplied with BOT Reverse Trap bowl Add.....	2 25
If supplied with plain syphon jet bowl Add.....	7 00
If supplied with N.P. stock cock on supply Pipe, Add.....	1 50
If supplied less brass and rubber floor flange and bolts, Deduct.....	0 60
If supplied less bend or offset, deduct..	0 50
If supplied less N. P. supply pipe deduct	0 70

CLOSET BOWLS—

Washdown bowl with spud.....	10 60
Reverse trap bowl, with spud.....	12 10
Syphon jet bowl, with spud.....	17 00
"Richelieu" bowl.....	10 50

CLOSET TANKS—LOW DOWN—

Oak wood, Tank and inside fittings with bend and supply.....	13 20
Mahog. Wood Tank, and inside Fittings with bend and supply.....	15 40
Oak Vitro or Pussyfoot Tank and inside Fittings with bend and supply.....	13 45
White Vitro or Pussyfoot Tank and inside Fittings with bend and supply.....	13 40
White Enam. Tank P-585 or P-9262, or White Vitreous China Belmeade Tank with fittings (as above).....	18 00

CLOSET SEATS—

Oak Rich. Seat and Cover to wall.....	3 50
Oak Woodstrip Seat and Cover with bolts	3 50
Oak Woodstrip Seat less Cover with bolts	2 90
Oak Post Hinge Seat and Cover.....	3 85
Mahog. Fin. Post Hinge Seat and Cover..	4 75

SLIGHT DECLINE IN HAIR FELT QUOTATIONS**Toronto.**

There is a slight sag in the prices quoted on hair felt in cut quantities. The new quotations in effect are given below.

HAIR FELT—	1 1/2"	3/4"	1"
Full rolls.....	\$17.25	24.00	28.50
Cut across sheet (100 sq. ft.).....	5.75	7.50	9.00
* Cut across sheet (less than 100).....	6.75	8.50	10.00

BOILER TUBE PRICES SLIGHTLY HIGHER**Toronto.**

Following recently noted firmness in primary markets, there has been a slight advance in quotations on some sizes of

boiler tubes. There is a small variation noted in quotations on some sizes due in part to some fairly heavy stocks in sizes affected.

BOILER TUBES—

Size	Seamless.	Lap-weld
3/4 inch.....	\$19 00	\$.....
1 inch.....	20 00	
1 1/4 inch.....	22 00	
1 1/2 inch.....	24 00	
1 3/4 inch.....	24 00	23 00
2 inch.....	22 00	19 00
2 1/4 inch.....	24 00	21 50
2 1/2 inch.....	27 00	23 50
3 inch.....	34 00	28 50
3 1/4 inch.....	36 00	33 00
3 1/2 inch.....	38 00	33 00
4 inch.....	50 00	42 00

BOILERS AND RADIATORS REACH HIGHER LEVELS**Toronto.**

Boilers and radiators are higher in price as a result of a revision in discounts. The new quotations are 7 per cent. higher on radiators and considerably greater on boilers. The new discounts are as follows:

RADIATORS—

Revised radiator list prices are for 1, 2, 3, 4 and 5-column radiators per square foot.

38 in., \$1; 32 in., \$1.10; 30 in., \$1.15; 26 in., \$1.20; 23 in., \$1.26; 22 in., \$1.30; 20 in., \$1.36; 18 in., \$1.40; 16 in., \$1.50; 14 in., \$1.55; 13 in., \$1.60.

Discount on 2, 3, 4 and 5 column standard sizes, 44 per cent. for water and 45 per cent. for steam.

Discount on 1-column standard size, and 2, 3, and 4-column hospital sizes 36 per cent. for water and 37 per cent. for steam.

Wall radiators—5 ft., \$1.15; 6 ft., \$1.10; 7 ft., \$1.05; 9 ft., \$1.05; 12 ft., \$1.05. Discount 41 per cent.

BOILERS—**Water:**

Round 52 per cent. off list. Square 8 per cent. off list.

Steam:

Round. 13 per cent. off list; Square, list plus 7 per cent.

ENAMELED GOODS HOLD FIRM AT OLD LIST**Toronto.**

There is no change in quotations on enameled ware. Slight improvement is noted in movements in these lines. Today's quotations are as follows:

ENAMELED WARE—

Enameled Iron Baths, 3" roll rim, 4 ft., 4 ft. 6 in., 5 ft.....	51 40
Do., 5 1/2 ft.....	57 10
Lavatories—	
17x10" Apron F139 or P4045.....	15 30
18x24" Apron F154 or P3845 or P3847	23 60
18x21" Apron F169 or P4205.....	17 60
18x21" Roll Rim, F197, F199 or P4655-6.....	15 40
17x19" Roll Rim, F241 or P4345.....	12 60
Sinks, Roll Rim, 16x24 in.....	18 40
Do., 18 x 30 in.....	23 00
Do., 20 x 30 in.....	24 70
Sinks, Flat Rim—	
16x24.....	3 only 2 only 1 only
18x30.....	\$7 60 \$7 70 \$7 80
20x30.....	8 50 8 60 8 70
	9 70 9 80 9 90

SCRAP MATERIAL MARKET REFLECTS FIRM TREND**Toronto.**

Some higher prices are noted in quotations on scrap materials locally. Copper scrap is still creeping up and 14c per lb. is being offered for most available stocks. Brass, lead and some lines of rubber scrap are also quoted at higher levels.

Iron and steel scrap markets are still strong and firm and prices will, in all probability, advance further. Quotations locally have not reached the levels quoted in Buffalo, and shipments will continue to be made to that point as long as this difference is in effect. The fol-

lowing are average dealers' buying prices for large quantities f.o.b. Toronto.

SCRAP MATERIALS—		f.o.b. Toronto	
Scrap Iron			
Heavy melting steel	.. .. .	16 00	— 17 00
Scrap pipe	.. .. .	9 00	— 10 00
Steel turnings	.. .. .	12 50	— 13 50
Malleable scrap	.. .. .	14 50	— 15 00
Rails, scrap	.. .. .	14 50	— 15 00
Net tons—			
No. 1 cast	.. .. .	19 00	— 20 00
Stove plate	.. .. .	14 50	— 15 00
Car wheel (std.)	.. .. .	16 00	— 17 00

Scrap Metals			
Heavy copper wire	13 00	—	14 00
Light copper	10 50	—	11 00
No. 1 composition	10 50	—	11 50
Red brass turnings	9 00	—	10 00
Light brass	5 00	—	5 50
Heavy yellow brass	7 00	—	8 00
Heavy lead	5 25	—	5 75
Tea lead	3 25	—	3 75
Scrap zinc	5 00	—	5 75

Scrap Rubber			
Boots and shoes	3 00	—	3 25
High rubber boots	2 00	—	2 50
Auto tires	0 75	—	0 90
Solid tires	1 00	—	1 25
Inner tubes, mixed	3 50	—	4 00
Peelings, mixed	1 50	—	2 00

SHEETS ALL TAKE HIGHER PRICE LEVELS

Toronto.
As predicted in a recent issue of Sanitary Engineer, sheet metals have shown a general advance in price. The list now in effect follows:

GALVANIZED SHEETS—			
	Premier and Apollo		
10½ oz.	6 90	7 40	
U. S. 28 base	6 50	6 90	
U. S. 26 base	6 30	6 60	
22 and 24	6 05	6 45	
18 and 20	6 05	6 30	
16	5 90	6 15	
12 and 14	5 75	6 00	
Queen's Head			
28 gauge, base	7 25	7 50	
26	6 85	7 10	
24	6 55	6 80	
22	6 40	6 65	
Fleur de Lis			
28 gauge base	7 25	7 50	
26	6 85	7 10	
24	6 55	6 80	
22	6 40	6 65	

An extra 40c per 100 lbs. is charged for Key stone and Premier brands copper-bearing sheets. An extra is now charged on galvanized sheets. 10½ oz. and 28 ga., when shipped out in sheets 3 feet wide. The extra charged over prices shown in 20c. per 100 pounds.

TANK STEEL PLATES—			
¼-in. and heavier, base	3 60		
3-16 in.	3 95		

BLUE ANNEALED SHEETS—			
10 gauge, base	4 50	4 60	
12 gauge	4 55	4 65	
14 gauge	4 60	4 70	
16 gauge	4 65	4 75	

BLACK SHEETS—			
18-20 gauge	5 25	5 35	
22-24 gauge	5 30	5 40	
26 gauge	5 35	5 45	
28 gauge	5 50	5 60	
A charge of 25c per 100 lbs. is made for less than case lots. An extra 10c. per 100 lbs. is also charged on sheets 26 in. wide.			

PORTLAND CEMENT STILL INACTIVE

Toronto.
Weather conditions continue to hold business in cement to moderate proportions. The prices quoted have shown no change.

CEMENT—			
Carload lots, per barrel	3 45		
Less carload lots, per barrel, f.o.b. yard	4 35		
Per barrel, delivered	4 55		
Single bags, \$1.15 each; 4 bags to barrel.			
Extra charge of \$1.50 per load on less than 24 bag lots.			
Rebate of 20 cents each for empty bags.			

IRON PIPE QUOTATIONS STEADY AT RECENT LIST

Toronto.
No further changes have been noted in quotations on iron pipe since list No. 58 came into effect in February. Spring activity has not affected trade in this line as yet.

WROUGHT PIPE

Price List No. 58. February, 1922.
Standard Butt-weld Pipe S/C

Size	Steel Blk.	Gen. Galv. Blk.	Wrot. Galv. Blk.	Iron Galv.
¼ in.	6.00	8.00	7.38	9.42
½ in.	4.14	6.12	7.38	9.42
¾ in.	4.14	6.12	7.38	9.42
1 in.	5.27	6.72	7.57	9.10
1½ in.	6.44	8.05	9.20	10.93
2 in.	9.18	11.56	13.26	15.81
2½ in.	12.42	15.64	17.94	21.39
3 in.	14.85	18.70	21.45	25.58
3½ in.	19.98	25.16	28.86	34.41
4 in.	31.59	39.78		
5 in.	41.31	52.02		
6 in.	53.36	66.24		
8 in.	63.22	78.48		

Standard Lap-weld Pipe S/C

Size	Steel Blk.	Gen. Galv. Blk.	Wrot. Galv. Blk.	Iron Galv.
2 in.	23.31	28.49	32.19	37.74
2½ in.	34.52	42.71	48.56	57.33
3 in.	45.14	55.85	63.50	74.97
3½ in.	54.28	67.16	76.36	90.16
4 in.	64.31	79.57	90.47	106.82
4½ in.	74.93	92.71	110.00	130
5 in.	87.32	108.04	129	151
6 in.	113	140	167	196
7 in.	148	183	214	255
8 in.	155	193	225	268
8 in.	179	222	259	308
9 in.	217	269		
10 in.	202	250	291	346
10 in.	260	321	375	445

QUIET TONE PREVAILS IN SOIL PIPE MARKET

Toronto.
Soil pipe fittings remain unchanged in price. The following discounts holding firm locally.

2 inch	Less 33	1-3%
3 inch	Less 33	1-3%
4 inch	Less 33	1-3%
5 and 6 inch	Less 33	1-3%
8 inch	net	
FITTINGS—		
8 inch fittings	net.	
2 to 6 inch	Less 45	per cent.

RANGE BOILER QUOTATIONS REMAIN STATIONARY

Toronto.
There is no market movement noted this week in range boiler prices. Local quotations remain as follows:

Size	List Price.
5-gallon	\$13 50
12 to 15 gallon	14 00
18-gallon	15 00
25-gallon	16 50
30-gallon	17 50
35-gallon	20 50
40-gallon	22 75
52-gallon	38 00
66-gallon	60 75
82-gallon	74 00
100-gallon	103 00
120-gallon	117 00
144-gallon	164 00
168-gallon	187 00
192-gallon	210 00

Discounts, Standard weight, 40 per cent.
Extra heavy, 30 per cent.

FITTINGS QUOTATIONS SHOW RAPID CHANGES

Toronto.
Changes in quotations on pipe fittings have been so rapid that some jobbers have not been able to keep pace. Last week a change was noted in bushings,

plugs and unions, another advance is in effect on these lines, as well as a reduction in the discount on malleable fittings which was 68 per cent. and is now 65 per cent.

PIPE FITTINGS—

Cast iron fittings, standard	17½%
Do., do., extra heavy	25%
Plugs, cast iron	17½%
Do., solid	17½%
Do., countersunk	17½%
Bushings, mail	20%
Bushings, cast	22½%
Unions, ¼ in. to 2 in.	35%
Unions, ¼ in. to 2½ to 4 in.	35%
Flanged unions	17½%
Flanged fittings	27½%
Do., ¼ in. to 2½ in. and larger	23%
Do., galv., add to black	30%
Nipples, blk. and galv. ¼ to 4 in., close and short	50%
Do., 4½ in. and larger	49%
Do., long ¼ in. to 4 in.	55%
Do., 4½ in. and larger	45%
Do., running thread	30%
Couplings, 4 in. and under	25%
Do., 4½ in. and larger	5%

MALLEABLE FITTINGS—

New piece list, adopted June 1, 1922.			
1 in. elbow	0 32	0 53	
2 in. elbow	1 05	1 70	
1 in. tee	0 43	0 70	
3 in. tee	1 45	2 40	
1 in. coupling R. & L.	0 33	0 59	
1 in. locknut, R. & L.	0 15	0 23	
Discount, Less 65 per cent.			

RUBBER HOSE PRICES FOR SPRING HIGHER

Winnipeg.
Following closely the developments of the primary markets on rubber and cotton products comes the announcement of an advance in quotations for spring on rubber garden hose. The new quotations are approximately 1 cent per foot higher than recent quotations and affect the complete line in the different sizes. The new quotations given below are now in effect locally.

RUBBER HOSE, Plain—	per 100 ft.
½ inch, 3 ply	9 50
½ inch, 4 ply	10 50
½ inch, 5 ply	12 00
½ inch, 6 ply	13 50
¾ inch, 3 ply	11 00
¾ inch, 4 ply	12 00
¾ inch, 5 ply	13 50
¾ inch, 6 ply	15 50
¾ inch, 3 ply	13 00
¾ inch, 4 ply	14 00
¾ inch, 5 ply	15 50
¾ inch, 6 ply	18 00
1 inch, corrugated	14 00
1½ inch, corrugated	15 50
2 inch, corrugated	17 50

MAY BE SOME FURTHER CHANGES IN PLUMBING GOODS PRICES

As we go to press, Sanitary Engineer is informed that there is likely to be an important development in prices on lines affecting the plumbing trade. No definite figures are as yet available, nor have the different lines which will come under the new quotations, been announced, but this information will be available in time for an early issue of Sanitary Engineer.

Winnipeg Markets

WINNIPEG, March 29.—The upward tendency of the market is reflected in price revisions on several lines. Galvanized sheets, black and Canadian blue have advanced and American mills have advised the trade that they will not execute orders on this line for at least another four or five months, therefore it is well for merchants to purchase their necessary requirements as quickly as possible. Soil pipe and fittings as well as eavestrough and conductor pipe continues to rule steady. Due to the strong tone of the primary lead market an advance of 45 cents per hundred pounds has been recorded on lead pipe and lead pipe waste. Candle wick packing has moved upwards. Revised discounts are in effect on steam and compression goods. A few lines of closet tanks of the oak and white vitro variety show a slight advance.

SHEETS AND PLATES CONTINUE UPWARD TREND

WINNIPEG. — Galvanized sheets, black sheets and Canada plate blued has shown an advance of 50 cents. American mills have advised that they will not execute orders on this line for at least another four or five months and it is to the trade's advantage to purchase their requirements immediately. The following prices are in effect:

CANADA PLATE—Blued—	
Size 18x21, per box	7 25
Size 18x24, per box	7 25
Size 20x28, per box	7 25

IRON—Galvanized—	
16 Gauge, per 100 lbs.	7 60
18 Gauge, per 100 lbs.	7 75
20 Gauge, per 100 lbs.	7 75
22 Gauge, per 100 lbs.	7 90
24 Gauge, per 100 lbs.	7 90
26 Gauge, per 100 lbs.	8 05
28x30, per 100 lbs.	8 35
28x36, per 100 lbs.	6 5
10 3/4 oz. x 30, per 100 lbs.	8 75
10 3/4 oz. x 36, per 100 lbs.	9 05

STEEL SHEETS—Black—	
10 Gauge, per 100 lbs.	5 80
12 Gauge, per 100 lbs.	5 85
14 Gauge, per 100 lbs.	6 00
16 Gauge, per 100 lbs.	6 05
18 Gauge, per 100 lbs.	6 55
20 Gauge, per 100 lbs.	6 65
22 Gauge, per 100 lbs.	6 70
23 Gauge, per 100 lbs.	6 70
26 Gauge, per 100 lbs.	6 75

SOIL PIPE AND FITTINGS CONTINUE STEADY

WINNIPEG.—A firm undertone continues to feature the local market in soil pipe and fittings. While spring trade has not yet opened up to any degree an improvement is looked forward to within a short while. Prices are fully maintained.

EAVESTROUGH AND CONDUCTOR PIPE STEADY

WINNIPEG.—There is no change in quotations on eavestrough or conductor pipe. The market is ruling steady and as spring advances an improvement in the demand is expected.

HIGHER QUOTATIONS ON LEAD PIPE

WINNIPEG.—Due to the strong tone of primary markets an advance of 45 cents per 100 pounds has been recorded on lead pipe and lead waste pipe. Latest

quotations on lead pipe are \$13.86 per 100 pounds and \$14.76 per 100 pounds for lead waste pipe.

HIGHER PRICES ON CANDLE WICK PACKING

WINNIPEG.—An advance of 5 cents per pound has been recorded on cotton candlewick packing making present quotations 70 cents per pound.

CLOSET TANKS SHOW AN ADVANCE

WINNIPEG.—A slight advance has been recorded on oak and white vitro closet tanks and quotations on oak are \$14.50 and white \$17.00 less supply pipe elbow and coupling nut.

STEEL BATHS AT LOWER PRICES

WINNIPEG.—Steel baths of galvanized steel finished with white enamel show a reduction in price. Steel baths 5 feet in length are quoted at \$12.25 and 5 1/2 feet at \$13.50.

REVISION IN DISCOUNT ON PENBERTHY VALVES

WINNIPEG.—There is an upward revision on Penberthy valves and globe, angle and horizontal check are quoted at list price less 15 per cent. The gate style of valve is quoted at 22 1/2 per cent. and swing check at 7 1/2 per cent.

CLOSET SEAT HINGES AT LOWER PRICE

WINNIPEG.—Nickel plated closet seat hinges show slight decline and today's quotations are \$1 per pair.

INJECTORS QUOTED AT HIGHER LEVELS

WINNIPEG. — Penberthy injectors show higher price levels. Regular style suction is quoted at list price less 55 and 7 1/2 per cent. Brass injectors are quoted at 65 and 2 1/2 per cent. Penberthy injector repairs are list price plus 12 1/2 per cent.

DECLINE IN PRICE ON DESOLVO

WINNIPEG.—Desolvo, a chemical compound used for removing obstructions in drains, waste and straw pipes has shown a decline of 20c. per dozen and latest quotations are \$4.80.

REVISED DISCOUNTS ON STEAM AND COMPRESSION COCKS

WINNIPEG.—There is a revision in discount on steam, gauge and compression cocks. Steam quoted at list prices less 30 per cent. and compression at the same price.

NEW GOODS OF INTEREST TO THE PLUMBING TRADE

Tandem Pump

Canada Foundries and Forgings, Ltd. of Brockville, Ont., have placed on the market a new double acting pump which will be known as the "Tandem."

These pumps are said to be characterized by several new features including leather to metal wearing parts which can be renewed readily, it has special equipment for priming, a patented anti-freezing feature and its leathers being impregnated with a special fluid per-



mits the pump to be used for oils or gasoline without impairing the suction.

The manufacturers also state that the pump is capable of drawing water 27 ft. and of forcing it 80 ft. The pump is made in two sizes only, the small one taking 1 in. pipe and is said to have a capacity of 7 gallons per minute and the larger one takes 1 1/4 in. pipe with a capacity of 18 gals. per minute.

Tangent Tool

The Tangent Tool Engineering Co. Ltd., of 22 St. Mary Axe, London, E. C. 3, are offering to the trade a new cutting tool known as the Tangent shearing tool.

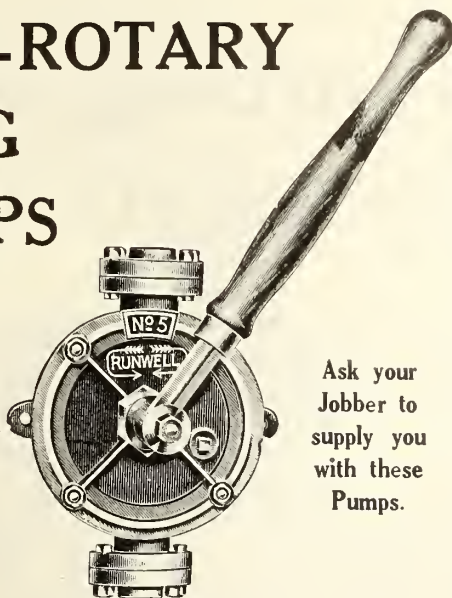
This tool is designed for cutting sheet metal either flat or corrugated and is made in two sizes, namely, type C. C. A. to deal with sheets up to 20 G., and type C. C. B., for gauges up to and including 18 G.

It is claimed that the outstanding feature of this tool is that it will cut corrugated sheets in any direction.

TRADE **RUNWELL** MARK

SEMI-ROTARY WING PUMPS

British
Manufacture



Ask your
Jobber to
supply you
with these
Pumps.

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MANITOBA, SASKATCHEWAN, ALBERTA:
FREDERICK SARA & CO., Calgary.
ONTARIO, QUEBEC, MARITIME PROVINCES:
UNIVERSAL SUPPLIES, LTD., 212 Coristine Bldg., Montreal.

RADIATOR HANGER

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Easy to Instal



Style R

Does not require accurate placing of anchor bolts—the ONLY hanger that is adjustable for height and lateral position. Only one bolt per hanger.

For ANY style of radiator, and ANY type of wall construction. Out of sight when installed.

Ask your jobber or write us.

Healy-Ruff Co.

Dept. 23,

Minneapolis, Minn.

JENKINS Brass Swing Check Valve



Fig. 475.
(Sectional View)

A strong, handsome and durable valve with the Jenkins Renewable Disc feature.

The angle of the seat is such that it opens readily at low pressure and the shock of closing under high pressure in the most severe service is absorbed in the line piping.

This Jenkins model is adapted for use in either horizontal or vertical position.

Fig. 475 illustrated here is the Standard pattern for 150 pounds working pressure. Made in extra heavy patterns (Fig. 260) suitable for 300 lbs. working pressure.

The complete Jenkins line is pictured and described in Catalog No. 9—free on request.

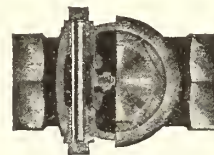


Fig. 475.
(Looking into Body of Valve).

JENKINS BROS. LIMITED

103 St. Remi St., Montreal

Sales Offices:

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VANCOUVER

European Branch: 6 Great Queen St., Kingway,
London, W.C. 2, Eng.

Jenkins Valves

SINCE 1864

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Toronto

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one year. Enclosed find \$2.00.

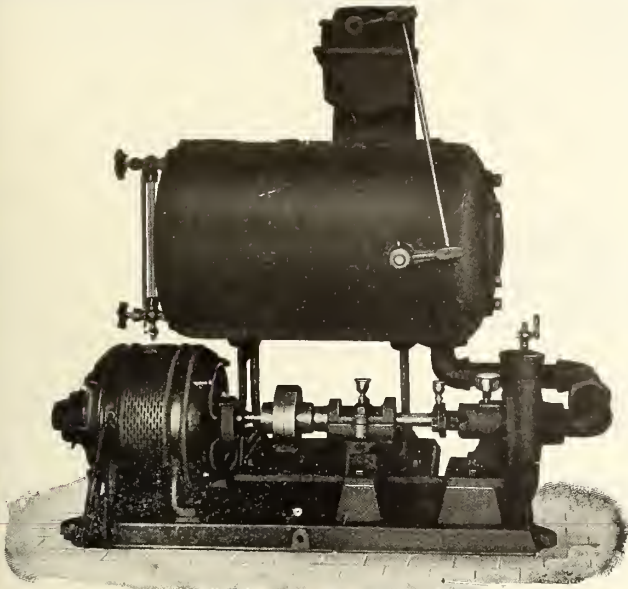
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SMART-TURNER

Automatic Feed Pump and Reservoir

Each heating job requires individual attention and an expert heating engineer's advice. Smart-Turner Pumps are supplied to all heating contracts to meet the particular conditions.



No. W-155

The pump illustrated here is one commonly connected with systems operating on low pressure. It is equipped with automatic magnetic switch control. Either multi-stage Centrifugal, Triplex or Duplex Power Pumps may be used on these outfits.

The Smart-Turner Machine Co., Limited, are always ready to confer with any heating engineer and supply the class of pump necessary to the situation.

Order your Fisher Steam Specialties from us. We are the representatives.

A few vertical gasoline engines and semi-rotary pumps on hand at reduced prices.

The Smart-Turner Machine Co., Ltd.

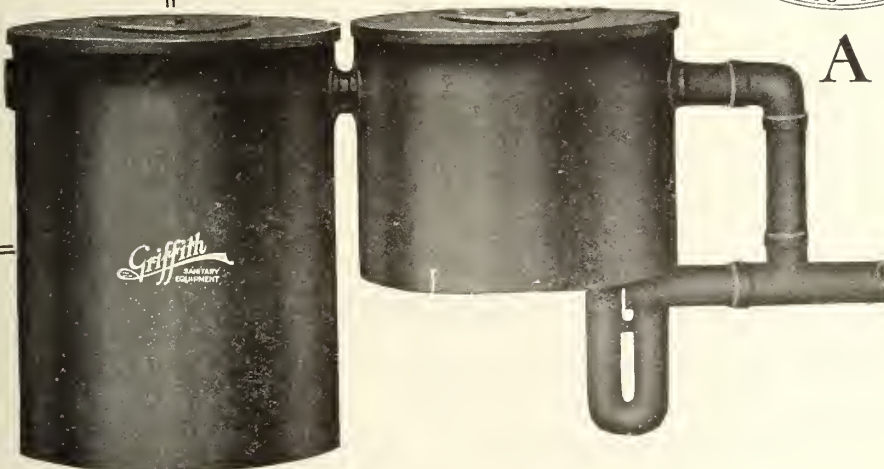
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-

CANADA



A Complete Job in One Trip



See our advertisement for Dayton
Pumps on page one of this issue.

Installing a Griffith all Metal Septic Tank Eliminates delays, avoids return trips, clips hours of valuable time.

At a fractional part of the usual time with less labour cost you have a perfect working job. You, Mr. Sanitary Engineer, supervise the job throughout.

Our Service Department exists solely to co-operate with you on your installation problems.

We'll gladly clear up any doubtful points.

Write to-day for catalogue and dealer's price list.

T. G. GRIFFITH & COMPANY

Manufacturers and Sanitary Engineers

165 King St. E.

Toronto, Ontario



Are You Affected by Price Cutting?

If so you would have been interested in an article written by a plumber who knew how to meet this problem, as appearing in February 15 issue of Sanitary Engineer.

That was only one of eleven splendid articles in that issue showing how plumbers were merchandising goods, solving technical and other problems of the trade.

SOME HEADINGS OF OTHER ARTICLES IN THE SAME ISSUE WERE:—

"Had to re-order many lines of bathroom fittings for special sale"—Band & Cole, Ottawa, Ont.

"Sold additional equipment worth \$400 from \$200 water plant installation."

How St. John plumber does profitable trade in filters.

The problem of too much price cutting in plumbing.

How to clean shop-soiled valves.

Use of generator on hot water systems.

} **QUESTION BOX**

Details of plans for septic tank for use of 12 persons.

Plumber launches a prodigious Publicity Campaign.

Rating of furnaces based on register temperature as well as leader pipe area.

Tinsmith's patterns for a smoke pipe branch.

Winnipeg heating engineer gives public demonstration of furnaces.

IN ADDITION, there were the regular departments covering news of the trade from Coast to Coast—Market Reports showing current prices on plumbing and heating equipment—Minute Message by Frank Stockdale, a merchandising authority on business problems.



—ON THE WAY

For Future Issues

A splendid series of articles on hot water, steam and vapor heating will appear.

The series on Rural Sewage Disposal will be developed into giving detail of actual installations.

Arrangements have been made for the introduction into Canada through Sanitary Engineer exclusively of a number of the features of the Trade Extension Bureau of the United States. This will give Canadian plumbers a service which has done more than any other one thing to put many U.S. plumbers on their feet.

The Question Box Dept. is constantly at your service with the best advice on your problems.

YOU WILL FIND MUCH BRIGHT AND HELPFUL READING IN EVERY ISSUE.

"At 9 Cents an Issue it is the Best Buy of the Year."

This is what hundreds of the best plumbers in Canada are now saying of every issue of Sanitary Engineer, and the additional service of answering enquiries which goes with a subscription.

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Sign the Form now—Mail it with \$2 to cover year's subscription of 24 issues and spread the expense at the rate of 9 cents an issue over the year on your books.

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Send me Sanitary Engineer beginning with the April 1 issue. I am enclosing \$2.00—or you can bill me for it later.

Date.....

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- 1 "Rex" Unions are tested and guaranteed to stand 250 lbs. working pressure.
- 2 The counterbored ends prevent the first thread becoming battered and permits an easy entrance of the pipe.
- 3 They will not corrode and will withstand vibration, expansion, contraction, fluctuating pressures and other severe conditions.
- 4 The bronze to iron seat, as used in "Rex" Unions, is recognized as the best known combination of metals to be used for permanent joints and where frequent disconnecting is necessary.
- 5 The octagonal shape of the three parts permits of connections being made with an ordinary monkey wrench.
- 6 The uniform diameter of the waterway insures an unobstructed flow and thorough drainage.
- 7 "Rex" Unions can be supplied threaded to either Briggs or Whitworth Standard and can therefore be used for your export trade.

A Proof of "Rex" Union Superiority

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Dear Sirs:—Confirming our conversation with regard to Rex Unions: as you are aware, we have recently purchased from your Company a large quantity of Rex Unions, and have found them satisfactory in every respect. They appear to have more metal in them than other Unions, and we also find them interchangeable; in fact we are very well pleased with them and intend specifying your Unions on our orders where we can consistently do so.

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KERR VALVES

Iron Body, Bronze Mounted with Outside Screw and Yoke

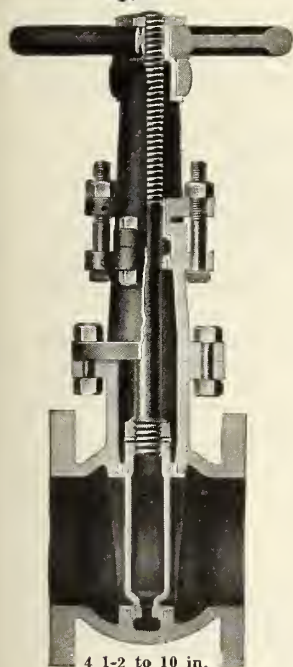
These gate valves are specially designed to comply with the requirements of the Factory Mutual Fire Insurance Companies' specifications for sprinkler Equipment.

Bronze bushed Stuffing Boxes, and Malleable Iron Glands are employed, and stems are of the dimensions and strength required on this exacting work.

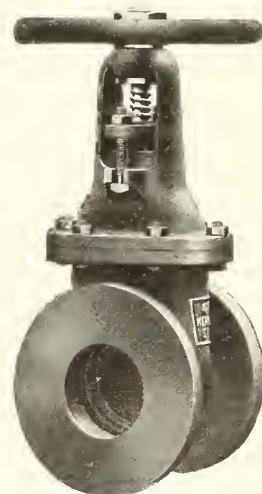
Commercial valves of our manufacture are supplied in this pattern and with this equipment, thus insuring a remarkably high class valve.

The valves are compact in design, sturdy construction, and modern throughout.

Specify Kerr KEYSTONE Gate Valves.
Every valve tested.



4 1-2 to 10 in.



No. 62.
2 1-2 to 4 in.

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Wallaceburg Brass & Iron Mfg. Co., Ltd., Wallaceburg, Ont.
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Steel Trough & Machine Co., Ltd., Tweed, Ont.

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Kerr Engine Co., Ltd., Walkerville.
James Morrison Brass Mfg. Co., Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
Standard Sanitary Mfg. Co., Ltd., Toronto.
Hamilton.
United Brassfounders and Engineers, Ltd., Manchester, Eng.
Wallaceburg Brass & Iron Mfg. Co., Ltd., Wallaceburg, Ont.
Wolverine Ltd., Toronto, Ont.
W. H. Cunningham & Hill, Ltd., Toronto.

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United Brassfounders & Engineers Ltd., Manchester, Eng.
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Fittings Limited, Oshawa.

DAMPER REGULATORS

C. A. Dunham Co., Ltd., Toronto.

DRAINAGE FITTINGS

Canada Metal Co., Ltd., Toronto.
Empire Mfg. Co., Ltd., London and Toronto.
Fittings Limited, Oshawa.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
Standard Sanitary Mfg. Co., Ltd., Toronto.
Hamilton.
United Brassfounders & Engineers, Ltd., Manchester, Eng.
Warden King, Ltd., Montreal.

DRAIN PIPE SOLVENT

W. H. Cunningham & Hill, Ltd., Toronto.
Hercules Chemical Co., Inc., New York City.

DRINKING FOUNTAINS

Canada Metal Co., Ltd., Toronto.
Empire Mfg. Co., Ltd., London and Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
Standard Sanitary Mfg. Co., Ltd., Toronto.
Hamilton.

DROP FORGINGS

J. H. Williams & Co., Brooklyn, N.Y.

EJECTORS, STEAM

Kerr Engine Co., Walkerville.
United Brassfounders & Engineers, Ltd., Manchester, Eng.

ENAMELWARE

Amherst Foundry Co., Ltd., Amherst, N.S.
Canada Metal Co., Ltd., Toronto.
Empire Mfg. Co., Ltd., London and Toronto.
Galt Brass Co., Limited, Galt.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
Standard Sanitary Mfg. Co., Ltd., Toronto.
Hamilton.
Port Hope Sanitary Mfg. Co., Ltd., Port Hope

Standard Sanitary Mfg. Co., Ltd., Toronto.

ELECTRIC PUMPING MACHINERY

Empire Mfg. Co., Ltd., London and Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
Smart Turner Machine Co., Ltd., Hamilton, Ont.

EXPANSION TANKS

Toronto Hardware Mfg. Co., Ltd., Toronto.

FITTINGS

Canada Metal Co., Ltd., Toronto.
Empire Mfg. Co., Ltd., London and Toronto.
Fittings Limited, Oshawa.
James Morrison Brass Mfg. Co., Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
Standard Sanitary Mfg. Co., Ltd., Toronto.
Hamilton.
United Brassfounders & Engineers, Ltd., Manchester, Eng.
Warden King, Ltd., Montreal.

FLUSHOMETERS

Canada Metal Co., Ltd., Toronto.
Empire Mfg. Co., Ltd., London and Toronto.
Galt Brass Co., Ltd., Galt.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
Standard Sanitary Mfg. Co., Ltd., Toronto.
Hamilton.
Wolverine Ltd., Toronto, Ont.

FLOOR AND CEILING PLATES

Beaton & Caldwell Mfg. Co., New Britain, Conn.
W. H. Cunningham & Hill, Ltd., Toronto.
Fittings, Limited, Oshawa.
Wolverine Ltd., Toronto, Ont.
Empire Mfg. Co., London and Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.

FURNACES

Gurney Foundry Co., Limited, Toronto.
Warden King, Ltd., Montreal.
Spencer Heater Co., Ltd., Toronto.
Hamilton Stove & Heater Co., Hamilton.
Burrow, Stewart & Milne, Hamilton.
Hall-Zryd, Hespeler, Ont.
Vulcan Co., London, Ont.

GASOLINE ENGINES

Empire Mfg. Co., Ltd., London and Toronto.

GAS WATER HEATERS

Bastian-Morley, Limited, Toronto.
Empire Mfg. Co., Ltd., London and Toronto.
James Morrison Brass Mfg., Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
Standard Sanitary Mfg. Co., Ltd., Toronto.
Hamilton.
W. H. Cunningham & Hill, Ltd., Toronto.

GALVANIZING

Fittings, Limited, Oshawa.

HEAT GENERATORS

Galt Brass Co., Galt, Ont.
Grant E. Cole Co., 23 River Street, Toronto.

HEATING APPARATUS

C. A. Dunham Co., Ltd., Toronto.
Smart Turner Machine Co., Ltd., Hamilton, Ont.
J. E. Farrell, 210 Galley Ave., Toronto, Ont.

HEATERS

Canada Metal Co., Ltd., Toronto.
Grant E. Cole Co., 23 River Street, Toronto.
Lord & Burnham Co., Ltd., Toronto.
Smart Turner Machine Co., Ltd., Hamilton, Ont.
Warden King, Ltd., Montreal and Toronto.
W. H. Cunningham & Hill, Ltd., Toronto.

HEATING SYSTEMS

C. A. Dunham Co., Ltd., Toronto.
J. E. Farrell, 210 Galley Ave., Toronto, Ont.
Grant E. Cole Co., 23 River Street, Toronto.

HOIST HOOKS

J. H. Williams & Co., Brooklyn, N.Y.

JAPANING

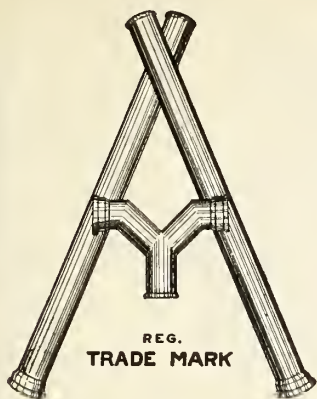
Fittings, Limited, Oshawa.

KEROSENE WATER HEATERS

W. H. Cunningham & Hill, Ltd., Toronto.

LAUNDRY TUBS

The Canada Metal Co., Ltd., Toronto.
Standard Sanitary Mfg. Co., Ltd., Toronto.
Hamilton.
Steel Trough & Machine Co., Ltd., Tweed, Ont.



USE

TESTED Soil Pipe

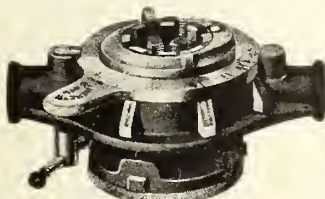
IT COSTS NO MORE AND YOU KNOW THE JOB IS RIGHT

Manufactured by

FORWELL FOUNDRY, LTD.

KITCHENER, ONT.

Threads $\frac{1}{4}$ to $\frac{3}{4}$ inch With No Loose Parts

Instantly
AdjustableComplete
Within
Itself.

No. 6 Beaverette

No. 6 Beaverette cuts perfect threads on $\frac{1}{4}$, $\frac{3}{8}$, $\frac{1}{2}$ and $\frac{3}{4}$ " with greatest ease, speed and convenience.

No loose parts—instantly adjustable—simply set the handle. Universal chuck avoids bushing. Cuts a thread while changing dies on other tools. Always ready to use when needed. 100,000 in daily use in leading shops the world over.

Write for the Beaver catalog—the most complete pipe tool catalog issued.

The Borden Company
518 DANA AVE., WARREN, OHIO



BEAVER

The Easiest Way To Cut Good Threads

They Always Call Again

The merchant may be sure when he sells an article bearing this mark:



that his customers will call again. In every Gendron product there is:

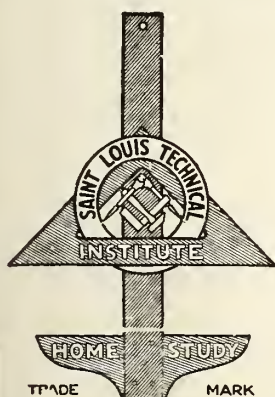
Conscientious manufacture and Fair Price, and for the dealer a splendid margin of profit.



The Gendron Mfg. Co. Ltd.

Duchess Street

Toronto



Are These The Opportunities You're Looking For?

Fan Heating and Ventilating Engineering is the pinnacle of all other forms of heating, and of all branches of steam fitting and sheet metal work. It prepares you for:

1. For Employers it enlarges their business opportunities 100%.
2. Employees it raises to Foremanship of a large shop.
3. Or as Designing Engineer of some large Heating Contractor.
4. As an intelligent Salesman of Heating Appliances.
5. As Chief Engineer with a Heating or Furnace Manufacturing Co.
6. Later a Consulting Engineer to Architects and Building Contractors, etc.

Which of These Are You Working for?

Full Information Free.

[] Fan Heating and Ventilating Engineering. [] Sheet Metal Design and Pattern Drafting.

[] Business Management, for office folks.

Select Your Course.

ST. LOUIS TECHNICAL INSTITUTE

4543 Clayton Avenue

O. W. Kothe, Prin.

St. Louis, Mo.

LAVATORIES

Steel Trough & Machine Co., Ltd., Tweed, Ont.

LEAD

Canada Metal Co., Ltd., Toronto.
 Empire Mfg. Co., Ltd., London and Toronto.
 H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
 Standard Sanitary Mfg. Co., Ltd., Toronto,
 Hamilton.

MACHINISTS' TOOLS

J. H. Williams & Co., Brooklyn, N. Y.

MALLEABLE IRON CASTINGS

Gurney Foundry Co., Limited, Toronto.
 Fittings, Limited, Oshawa.

MACHINE BOLTS AND NUTS

Fittings, Limited, Oshawa.

MIXING VALVES

Canada Metal Co., Ltd., Toronto.
 Empire Mfg. Co., Ltd., London and Toronto.
 H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
 Standard Sanitary Mfg. Co., Ltd., Toronto,
 Hamilton.
 Port Hope Sanitary Mfg. Co., Ltd., Port Hope.

PACKING

Grant E. Cole Co., 23 River Street, Toronto.

RADIATOR FOOT RESTS

Empire Mfg. Co., Ltd., London and Toronto.
 Wolverine Ltd., Toronto, Ont.
 W. H. Cunningham & Hill, Ltd., Toronto.

PACKLESS RADIATOR VALVES

Kerr Engine Co., Walkerville.
 C. A. Dunham Co., Ltd., Toronto, Ont.

PIPE AND RADIATOR HANGERS

Beaton & Cadwell Mfg. Co., New Britain,
 Conn.
 W. H. Cunningham & Hill, Ltd., Toronto.
 Healy-Ruff Company, Minneapolis, Minn.

PIPE, BLACK AND GALVANIZED

Canada Metal Co., Ltd., Toronto.
 Canadian Tube and Iron Co., Ltd., Montreal.
 Empire Mfg. Co., London and Toronto.
 H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
 Standard Sanitary Mfg. Co., Ltd., Toronto,
 Hamilton.

PIPE CLEANSER

Chamberlain Desolve Co., Ltd., Toronto.
 Empire Mfg. Co., Ltd., London and Toronto.
 Hercules Chemical Co., Inc., New York City.
 Wolverine, Ltd., Toronto, Ont.
 W. H. Cunningham & Hill, Ltd., Toronto.

PIPE JOINT COMPOUNDS

Wolverine, Ltd., Toronto, Ont.
 Empire Mfg. Co., Ltd., London and Toronto.
 W. H. Cunningham & Hill, Ltd., Toronto.

PIPE, SOIL AND FITTINGS

Anthes Foundry Co., Toronto and Winnipeg.
 Canada Metal Co., Ltd., Toronto.
 Empire Mfg. Co., Ltd., London and Toronto.
 Fittings, Limited, Oshawa.
 H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
 Standard Sanitary Mfg. Co., Ltd., Toronto,
 Hamilton.
 Toronto Hardware Mfg., Co., Toronto.
 Warden King, Ltd., Montreal.

PIPE THREADING TOOLS AND MACHINERY

Borden Canadian Co., Toronto.
 A. B. Jardine & Co., Hespeler.
 W. H. Cunningham & Hill, Ltd., Toronto.

PIPE WRENCHES

J. H. Williams Co., Brooklyn, New York.
 W. H. Cunningham & Hill, Ltd., Toronto.

PLUMBERS' TOOLS

J. H. Williams & Co., Montreal, Que.
 W. H. Cunningham & Hill, Ltd., Toronto.

PNEUMATIC WATER SUPPLY TANKS

Empire Mfg. Co., London and Toronto.
 Steel Trough & Machine Co., Ltd., Tweed, Ont.

PORCELAIN WARE

Canada Metal Co., Ltd., Toronto.
 Empire Mfg. Co., London and Toronto.
 H. Mueller Mfg. Co., Ltd., Sarnia, Ont.

PUMPS

W. H. Cunningham & Hill, Ltd., Toronto.
 Grant E. Cole Co., 23 River Street, Toronto.
 H. Mueller Mfg. Co., Limited.
 Smart Turner Machine Co., Ltd., Hamilton, Ont.
 Steel Trough & Machine Co., Ltd., Tweed, Ont.
 The Westco Pumps Limited, Toronto.
 United Brassfounders & Engineers, Ltd.,
 Manchester, Eng.

PUMPING SYSTEMS, AUTOMATIC

Canada Metal Co., Ltd., Toronto.
 H. Mueller Mfg. Co., Limited.
 Smart Turner Machine Co., Ltd., Hamilton, Ont.
 The Westco Pumps, Limited, Toronto.
 Beaton & Cadwell Mfg. Co., New Britain, Conn.

RADIATORS

Gurney Foundry Co., Limited, Toronto.
 Lord & Burnham Co., Ltd., Toronto.
 Warden King Ltd., Montreal.

RADIATOR HANGERS

Healy Ruff Company.

RADIATOR NIPPLES

Fittings, Limited, Oshawa.

RADIATOR TRAPS (STEAM)

C. A. Dunham Co., Ltd., Toronto.
 Grant E. Cole Co., 23 River Street, Toronto.
 H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
 United Brassfounders & Engineers Ltd., Man-
 chester, Eng.

RIVETS

Fittings, Limited, Oshawa.

RANGE BOILERS

Standard Sanitary Mfg. Co., Ltd., Toronto,
 Hamilton.
 The Canadian John Wood Mfg. Co., Toronto.
 Toronto Hardware Mfg. Co., Toronto.

REDUCING PRESSURE VALVES

Grant E. Cole Co., 23 River Street, Toronto.
 C. A. Dunham Co., Ltd., Toronto.
 J. E. Farrell, 210 Galley Ave., Toronto, Ont.
 H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
 United Brassfounders & Engineers, Ltd.,
 Manchester, Eng.

RETURN TILTING TRAPS

J. E. Farrell, 210 Galley Ave., Toronto, Ont.
 Grant E. Cole Co., 23 River Street, Toronto.

ROOF FLANGES AND FLASHINGS

Canada Metal Co., Ltd., Toronto.
 Empire Mfg. Co., London and Toronto.
 Standard Sanitary Mfg. Co., Ltd., Toronto,
 Hamilton.

SEPTIC TANK VALVES AND SYPHONS

Anthes Foundry Co., Ltd., Toronto.
 Empire Mfg. Co., London and Toronto.
 H. Mueller Mfg. Co., Ltd., Sarnia, Ont.

SINK BRACKETS

Fittings, Limited, Oshawa.

SOCKETS, WIRE ROPE

J. H. Williams & Co., Montreal, Que.

SOLDER

Canada Metal Co., Ltd., Toronto.

STANDS, VISE, PORTABLE

H. P. Martin & Sons, Owensboro, Kentucky.

STEAM SPECIALTIES

Grant E. Cole Co., 23 River Street, Toronto.
 C. A. Dunham Co., Ltd., Toronto.
 Empire Mfg. Co., London and Toronto.
 J. E. Farrell, 210 Galley Ave., Toronto, Ont.
 Kerr Engine Co., Walkerville, Ont.
 Smart Turner Machine Co., Ltd., Hamilton, Ont.
 United Brassfounders & Engineers, Ltd.,
 Manchester, Eng.

STEAM TRAPS

Grant E. Cole Co., 23 River Street, Toronto.
 C. A. Dunham Co., Ltd., Toronto.
 J. E. Farrell, 210 Galley Ave., Toronto, Ont.
 United Brassfounders & Engineers Ltd.,
 Manchester, Eng.

STORAGE TANK HEATERS

J. E. Farrell, 210 Galley Ave., Toronto, Ont.

STOVES

Gurney Foundry Co., Limited, Toronto.

STOVES, GAS AND COAL

Gurney Foundry Co., Ltd., Toronto.

SUMP PUMPS

Smart Turner Machine Co., Ltd., Hamilton, Ont.

SWIVELS, HOOK

J. H. Williams & Co., Brooklyn, N.Y.

SYSTEM—ELECTRIC

Steel Trough & Machine Co., Ltd., Tweed, Ont.

SYSTEMS—SCHOOL

Steel Trough & Machine Co., Ltd., Tweed, Ont.

TANKS—GASOLINE

Steel Trough & Machine Co., Ltd., Tweed, Ont.

TANKS, STEEL

The Canadian John Wood Mfg. Co., Toronto

TANKS—STORAGE

Steel Trough & Machine Co., Ltd., Tweed, Ont.

TANK BULBS, (RUBBER)

Canada Metal Co., Ltd., Toronto.
 W. H. Cunningham & Hill, Ltd., Toronto.

THUMB SCREWS AND NUTS

J. H. Williams & Co., Brooklyn, N.Y.

TOOLS

Wolverine, Ltd., Toronto.
 Empire Mfg. Co., London and Toronto.
 H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
 Standard Sanitary Mfg. Co., Ltd., Toronto,
 Hamilton.
 J. H. Williams & Co., Brooklyn, N.Y.
 W. H. Cunningham & Hill, Ltd., Toronto.

TORCHES

W. H. Cunningham & Hill, Ltd., Toronto.

UNIONS

Canada Metal Co., Ltd., Toronto.
 Empire Mfg. Co., London and Toronto.
 H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
 United Brassfounders & Engineers, Ltd.,
 Manchester, Eng.

VAPOR HEATING SYSTEMS

C. A. Dunham Co., Ltd., Toronto.

VICES, CHAIN, CLAMP, MOUNT

J. H. Williams & Co., Brooklyn, N.Y.

VITRO TANKS

Galt Brass Co., Ltd., Galt.

VACUUM SYSTEMS OF HEATING

C. A. Dunham Co., Ltd., Toronto.
 Smart Turner Machine Co., Ltd., Hamilton, Ont.

VALVES

Empire Mfg. Co., London and Toronto.
 Jenkins Bros., Ltd., Montreal, Que.
 The Kerr Engine Co., Walkerville, Ont.
 United Brassfounders & Engineers Ltd.,
 Manchester, Eng.

WATER SUPPLY SYSTEMS

Empire Mfg. Co., London and Toronto.
 Smart Turner Machine Co., Ltd., Hamilton, Ont.
 Standard Sanitary Mfg. Co., Ltd., Toronto,
 Hamilton.
 Steel Trough & Machine Co., Ltd., Tweed, Ont.
 The Westco Pumps, Limited, Toronto.

WASHERS

Canada Metal Co., Ltd., Toronto.
 W. H. Cunningham & Hill, Ltd., Toronto

WASHING MACHINES

Gurney Foundry Co., Ltd., Toronto.

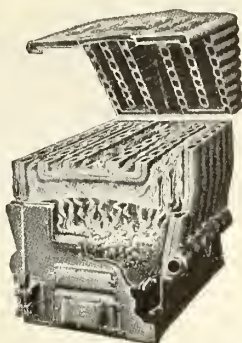
WRENCHES, SET, DROP FORGED, ENGINEERS, SOCKET AND CHAIN PIPE

J. H. Williams & Co., Brooklyn, N.Y.

WROUGHT COUPLINGS AND NIPPLES

Canada Metal Co., Ltd., Toronto.
 Fittings, Ltd., Oshawa.

When Answering Advertisements Mention
SANITARY ENGINEER



Long Fire Travel and Short Coal Bills

The less up chimney heat there is, the more boiler heat there is going to be.

"Up chimney" heat means coal waste.

In the illustration you will see that the Burnham Boiler fire travel is three times back and forth on both sides of the boiler.

This means that the bulk of the heat is out of the gases before they enter the flue.

Lord & Burnham Co. Limited of Canada

(BOILER DEPARTMENT)

Harbor Com. Bldg.
Toronto.



Factory—St. Catharines, Ontario.

CHRISTIE UNIT SYSTEM SEPTIC TANKS

Convenience for ALL. Thousands of homes can be modernized. Any place where there is NOT a Public Sewer CHRISTIE'S UNIT SYSTEM SEPTIC TANK is the only correct method of disposal.

HEALTHY, CONVENIENT, ECONOMICAL

Made of Reinforced Concrete. Can be shipped anywhere. Easy to install. Low in price. Both syphon and overflow type. No job too small. None too large. We have a type for both heavy and light soils.

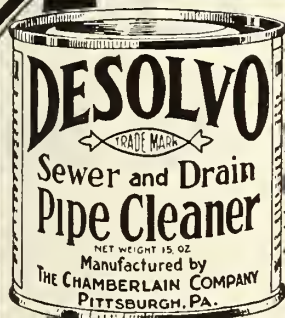
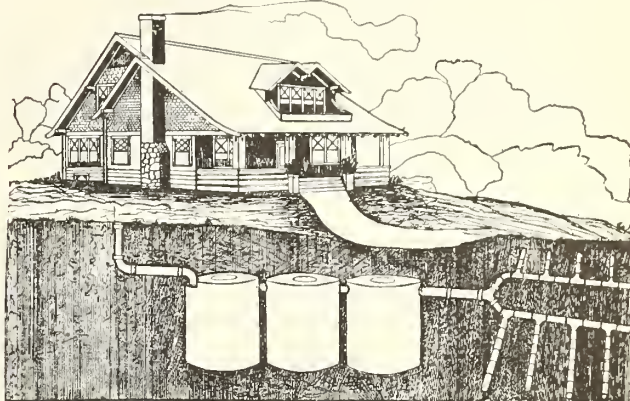
HOMES, SCHOOLS and SUMMER HOUSES.

Write for catalogue and dealers' price list.

Manufactured By

Christie Concrete Products Co.

Lindsay, Ontario



KEEPS DRAIN PIPES CLEAN
DESOLVO
Use A Can Every Month

The above slogan advertised consistently in Canadian newspapers is opening an entirely new opportunity for you. Instead of thawing out frozen pipes at a loss to yourself, sell a can of Desolvo—sell one every month to each customer—easy money—a real profit! Ask your jobber's salesman.



K-K. A companion product to Desolvo. Cleans closet bowls without scrubbing. This makes K-K mighty easy to sell. You can have a steady list of customers every month.

The Chamberlain Desolvo Co. Ltd.
Toronto, Canada



"Trimo"
an aid to real results

If you are thinking of doing a satisfactory job without the aid of a reliable wrench stop right there!

You can't do it!

Sit down and write us about the "Trimo," the wrench with the Steel Frames, Nut Guards and Insertable Jaw that renews the handle.

Made with Wood Handles in 6", 8", 10", 14" sizes.

Trimont Manufacturing Co.

55-71 Amory Street
Roxbury (Boston) Mass., U.S.A.

Canadian Representatives:
Geo. P. Fraser, 28 Temple Ave., Toronto



Wanted

Rates for Classified Advertising

Advertisements under this heading 3c per word for first insertion; 2c for each subsequent insertion. Where answers come to Box number in our care to be forwarded, 5 cents extra per insertion must be added to cover postage, etc.

Contractions count as one word, but five figures (as \$1,000), are allowed as one word.

Rates (payable in advance). When panels are desired a charge of \$2.50 is made for a panel 1 inch deep by 2½ inches wide. Minimum charge for any ad. \$1.00.

FOR SALE

ADDRESSING MACHINE FOR SALE—WE have a complete Belknap Addressing Equipment for sale. This equipment is still in use in our Subscription Department and is in excellent working order. We have placed an attractive price on this outfit, and would advise manufacturers or merchants having a mailing list to let us tell you how it will save you money. We will give a guarantee as to the proper working condition of this equipment. The MacLean Publishing Co., Ltd., 143 University Avenue, Toronto,

FOR SALE—OLD ESTABLISHED PLUMBING, heating and sheet metal business. Side line Hardware. Three hours from city of Vancouver, in one of the best centers of British Columbia. Owner having to give up on account of wife's health. This is a rare opening. \$3,000.00 cash takes it. Address Box 518 Sanitary Engineer,

A REAL SNAP—FOR SALE—ONE SET OF tinsmithing tools; if interested a detailed list can be acquired from Marsh Scott, Medicine Hat, Alberta. Price \$200.00 cash, F.o.b., Medicine Hat. These tools are guaranteed to be in good repair.

TAYLOR SAFES FOR SALE—RARE OPPOR-tunity to secure a safe at small cost. They are in splendid condition. Inside dimensions and prices are as follows: 15 in. deep, 2 ft. 6 in. wide, 3 ft. 11½ in. high, fitted with built-in compartment. Price \$250.00. 18 in. deep, 2 ft. 6 in. wide, 4 ft. 5 in. high, fitted with steel compartment. Price \$200.00. Apply Box No. 701, Sanitary Engineer, Toronto.

The Difference in Advertising Is the Difference in Men

Of itself, advertising is little. And the differences in it are the differences which exist in men.

Just as some men are strong and virile and interesting, so is some advertising. And just as some men are ineffectual and weak and boring, so is some other advertising.

"Does it pay to advertise?" It pays those men who are keen enough students of the public to make it pay them. It pays those men who are truthful, sincere, interesting and believable.

It pays the men whose product deserves the payment, whose brains are keen enough to organize for success and judge enough of the human mind to know how to tell their story with sincerity and interest.

So when you judge advertising, judge it by how it is used and by whom—not of itself and of itself alone.

Remember, an ugly man looks just as ugly in a mirror.

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Simplex Cast Iron Traps Built for Service



No. 282

Made in two sizes 1 1/4" and 1 1/2"

Self-Scouring Adjustable Non-Syphoning

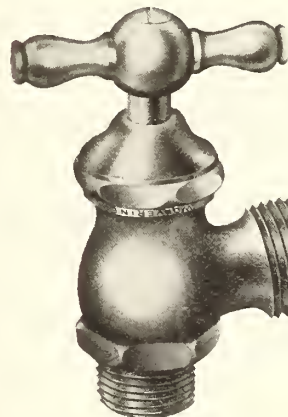
Others may look the same but?

WOLVERINE

LIMITED

76 Nelson St. Toronto-

Boiler DrainCocks



No. 667R

It pays to have Wolverine Articles on hand for instant use

ORDER NOW

Perfect
Castings
Machined
Perfect

Full Waterway
Heavy Body
Raised Seat
Red Fibre Seat
Washer and Bonnet
Packing
Wolverine Guarantee
of course.

Farrfhern

Atmospheric Steam Heating Systems

Give a noiseless perfect circulation, without the use of air vents or traps on radiators.

No Vacuum Pumps are used. Consequently it saves fuel and costs for maintenance.

Farrfhern Heating will make the work of Contractors more profitable.

It is for buildings of every type and size.

Let us co-operate with you on the next heating prospect. The more difficult it may be, the better we will like it.

Director of Sales

J. E. FARRELL

210 GALLEY AVE., TORONTO, ONTARIO



Tapped Closet Bend

Easier to attach
More permanent
Cost less



WROUGHT PIPE



Suitable for the approaching period of building activity, road construction, etc. This is a line of great importance in making successful, profitable contracts. Our C. T. Brand of Wrought Pipe has been

THOROUGHLY INSPECTED by practical, experienced men. It is tested to 600 lbs. hydraulic pressure, and branded with our trade-mark. We carry this line of reliable pipe in sizes 1/8-in. to 4-in. Black or Galvanized. We also manufacture nipples and couplings, black and galvanized, in all sizes.

Ask your Jobber for C. T. Brand Wrought Pipe
Canadian Tube and Steel Products Co., Ltd.
Operating Canadian Tube and Iron Co., Limited
Works at Lachine Canal, Montreal

Plumbers and Steamfitters—

There is only one kind of satisfactory tool and that is one that is in perfect working order. Inefficient tools are a direct liability to you.

Gather up your broken tools to-day, send them to us and we will quickly put them in shape for you.

CANADIAN SERVICE STATION
FOR BEAVER TOOLS

The Pipe Tool and Repair Co.

Adelaide St. W. -:- Toronto, Ont.

Repairmen to the Canadian Plumber and Steamfitter.

THE TRADE

*Is Respectfully Cautioned
to specify*

RIVETED RANGE BOILERS

Made by the old reliable

**TORONTO HARDWARE
MFG. CO., LIMITED**

PATENTED
CANADA



**Better
Selling
Value
Than Ever**

We have equipped our Steel Baths with Pressed Steel Removable Legs and 3 inch Roll Rim around the top, for which we have secured a Canadian Patent. This Roll Rim adds greatly to the selling value of

TWEED ENAMELLED STEEL BATHS

They now look like the expensive cast enamel baths but are the same price as before. Our new patent Roll Rim Enamelled Steel Baths are now ready for shipment—Order samples.

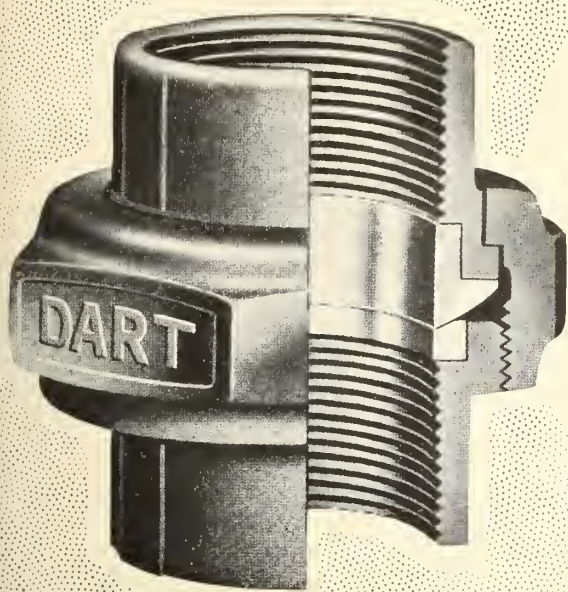
The Steel Trough & Machine Co. Ltd. Tweed, Ont.

Toronto Office—220 King St. W. A. R. Wooldridge, Representative.
Montreal Office—10 Victoria St. G. M. Price, Representative.

SANITARY ENGINEER'S

unique circulation as proven by the A.B.C. Audit is due to our honest effort to give the retail trade the best possible service.

The Advantages



IN USING Dart unions, the unions of quality with solid Bronze to Bronze ground ball joint, is that you save energy and you increase efficiency—factors well worth while, but here are others that directly concern you.

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Sold only through or by plumbers.
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125 Hanson St., TORONTO



Stability

Beauty of line and the white, gleaming beauty of Vitro finish are for all to see.

But this beauty is merely incidental:—when we had made the finest tank we knew how, had given it strength, efficiency and permanence, to round out our product and make it perfect we added beauty.

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It is the best selling tank on the Canadian market.

Your Jobber has them.

Galt Brass Company, Limited

GALT - - - - - ONTARIO

VITRO
NO TROUBLE
TANK

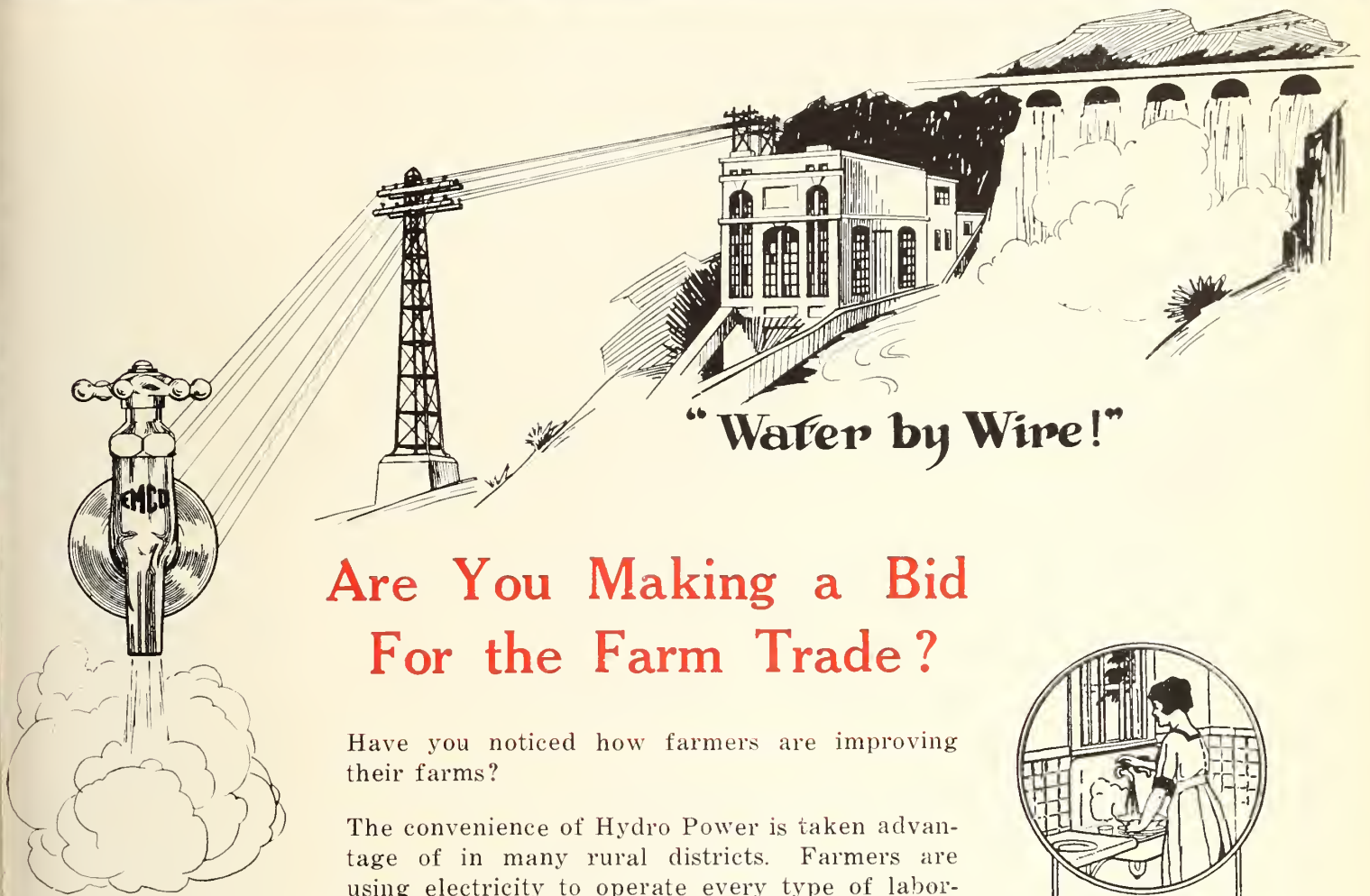
Sanitary Engineer

Plumber and Steamfitter of Canada

Vol. XVII.

PUBLICATION OFFICE, TORONTO, APRIL 15, 1923

No. 8



"Water by Wire!"

Are You Making a Bid For the Farm Trade?

Have you noticed how farmers are improving their farms?

The convenience of Hydro Power is taken advantage of in many rural districts. Farmers are using electricity to operate every type of labor-saving device. They are in the market for the Empire-Duro Water System—the compact, simple, electric pumping system that provides running water for every purpose on the farm.

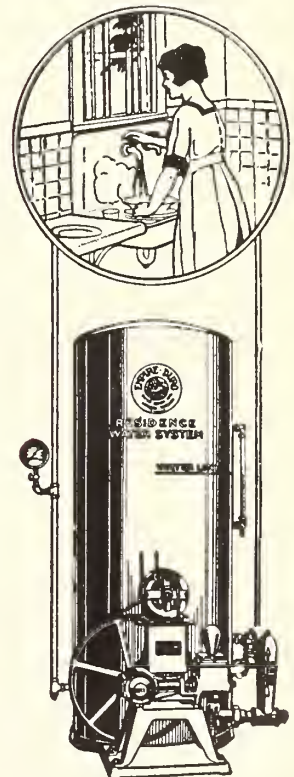
The Empire sales organization is co-operating with the dealer by an intensive direct-mail campaign in the rural districts. Write to-day for full particulars of our sales plan.

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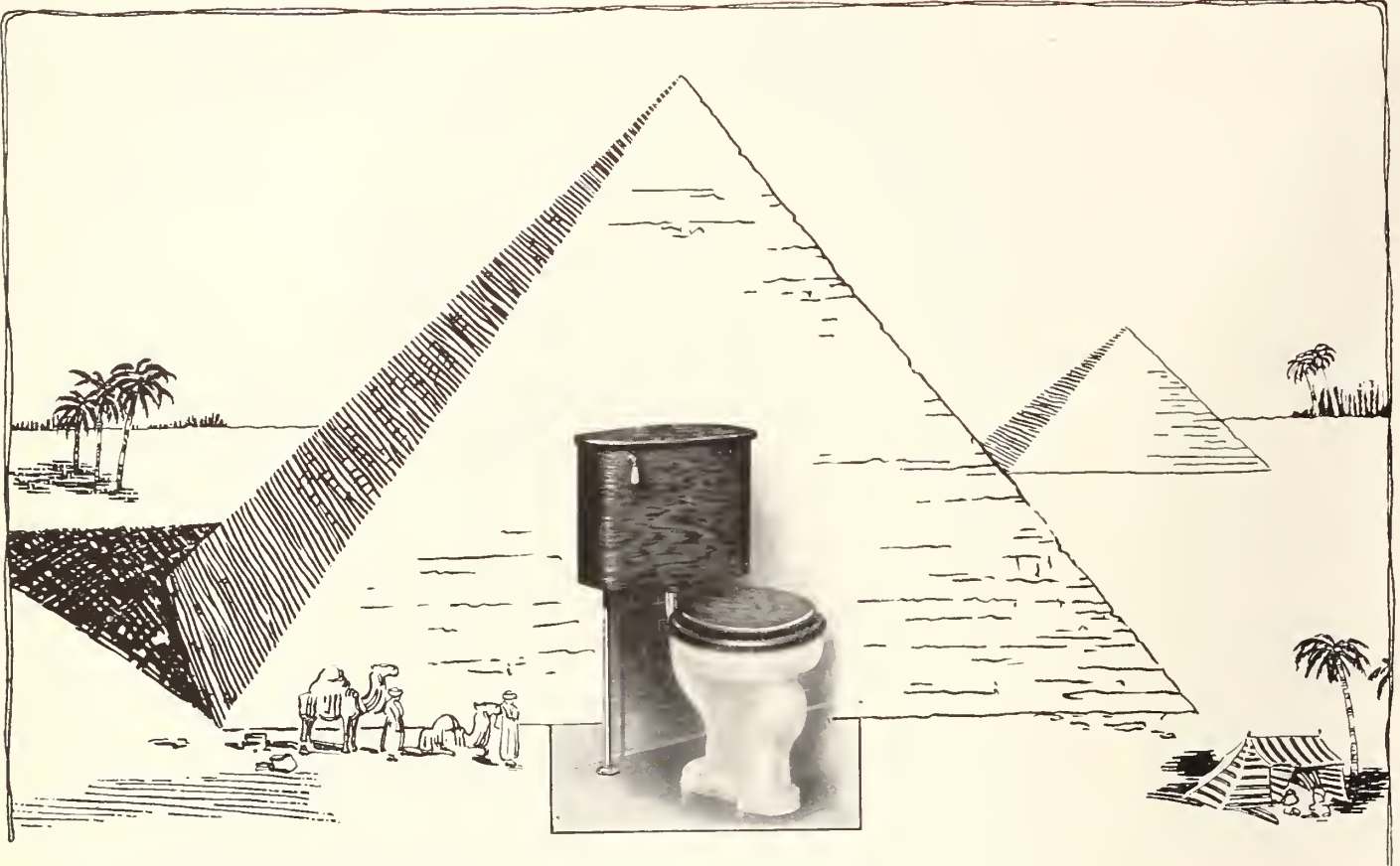
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"Pussyfoots" do best what multitudes of tanks do well

NOTE—If old King Tut were to come to life to-day and should see a "Pussyfoot" he would surely remark "What a vast improvement in closet tanks, and my! it is as silent as my tomb."

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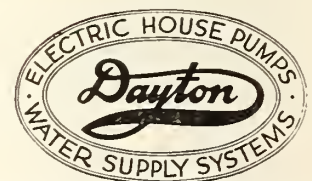
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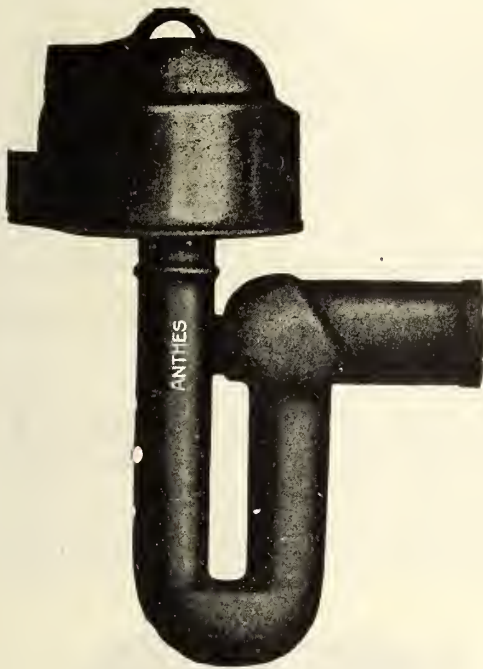
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The Anthes Siphon is the Heart of the Disposal System



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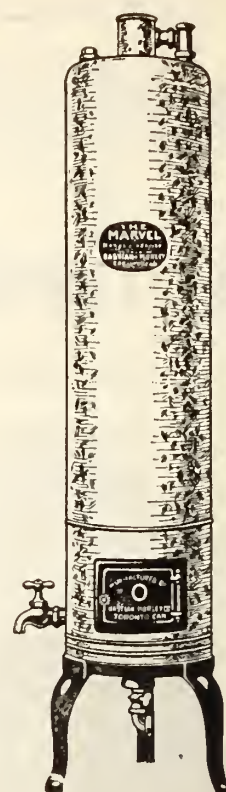
Marvel heaters leave with the dealer a very generous profit.

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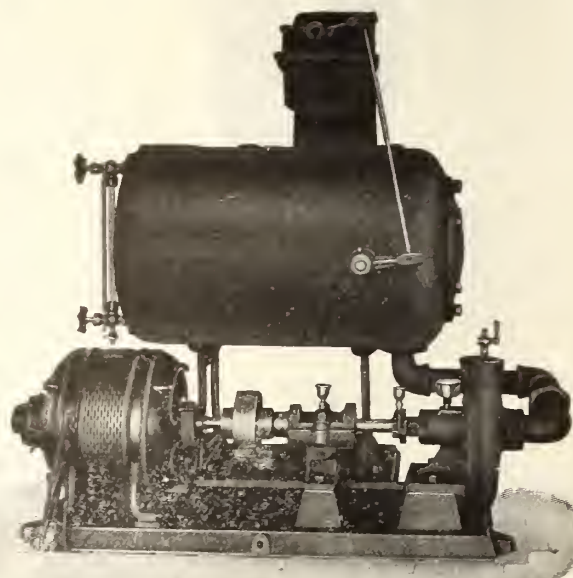
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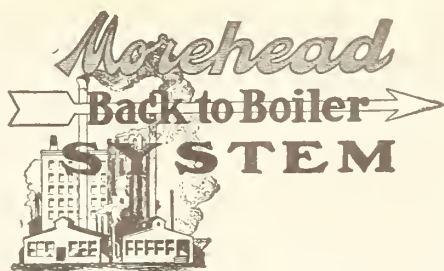
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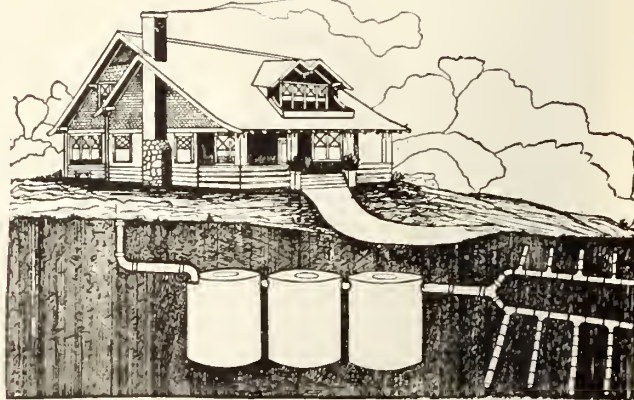
HOMES, SCHOOLS and SUMMER HOUSES.

Write for catalogue and dealers' price list.

Manufactured By

Christie Concrete Products Co.

Lindsay, Ontario



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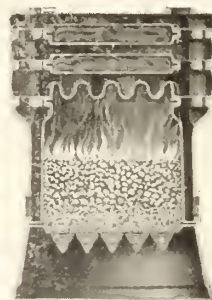
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*Is Respectfully Cautioned
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**Three Times
As Big
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No wonder the Burnham is such an economical boiler.

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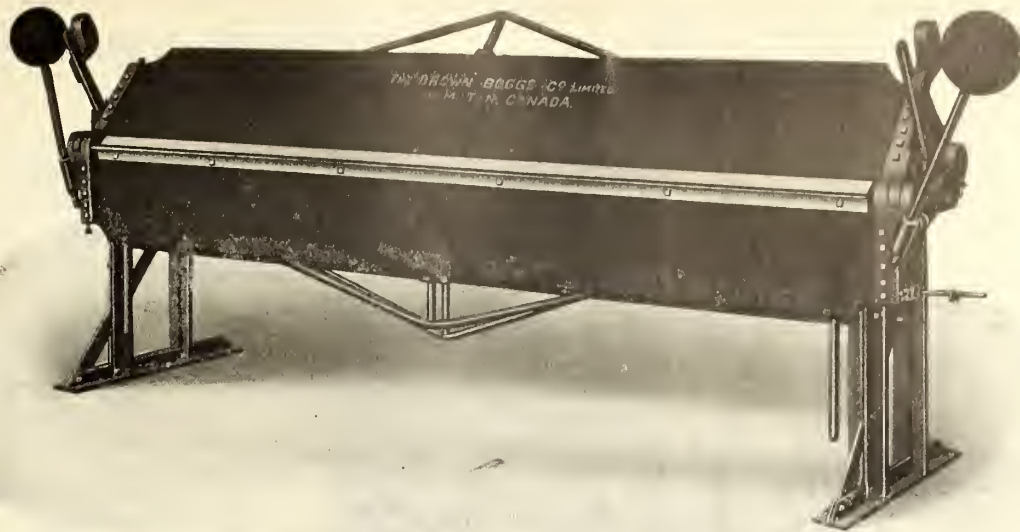
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of Canada

(BOILER DEPARTMENT)

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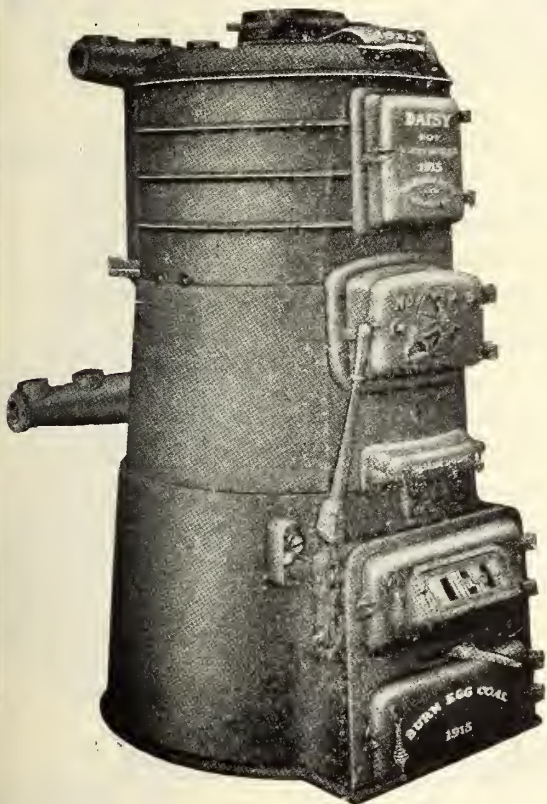


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This strong but light brake will quickly pay for itself. In spare time by making up your own supplies you can effect splendid economies. Write to-day for catalogue describing this and other tinsmiths' tools.

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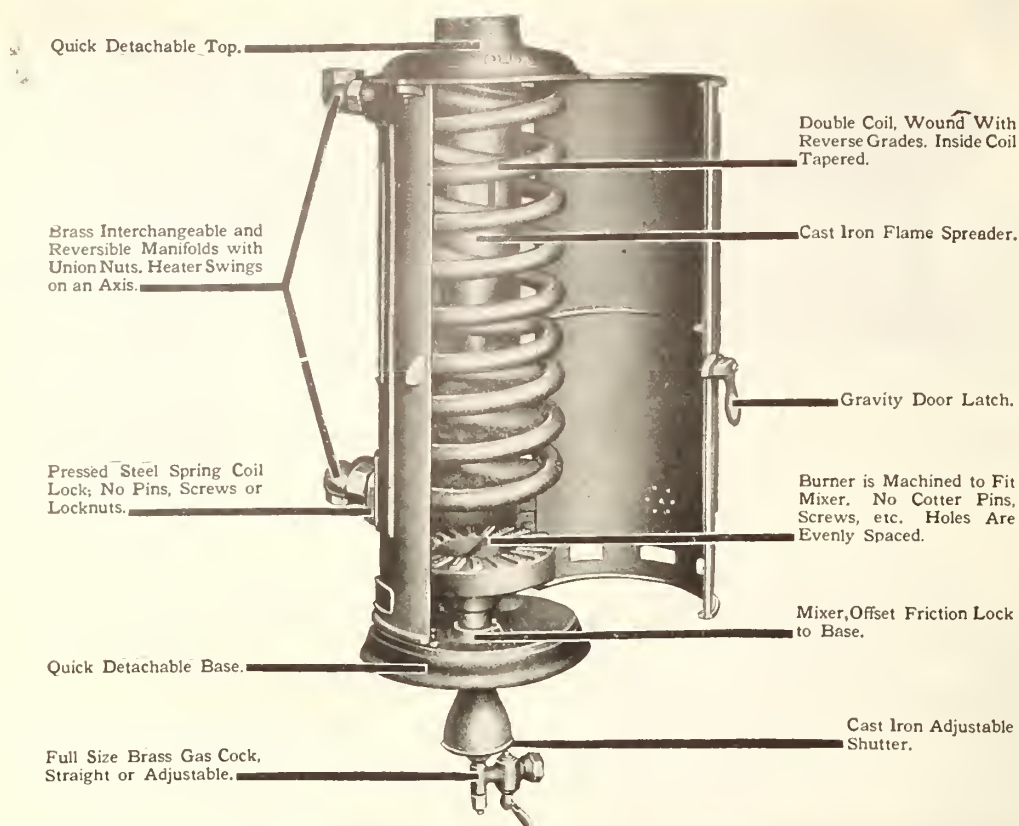
During the past long cold winter some of your customers were not satisfied with their heating system. They suffered the intense cold through poor heating and the coal shortage.

Some of them are in the market for a new system, and will want installation this summer or fall. Sell them a hot water system which will save them coal and give them sufficient heat.

Sell them a "Daisy" boiler and "Viking" radiators, which will give you liberal profits.

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Branch Office: 136 Simcoe Street, TORONTO



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The RUUD Sells. All the forces which for over a quarter of a century have been building RUUD prestige are levers that increase your sales, your turnover and your profit.

Made in Canada by

RUUD MANUFACTURING COMPANY

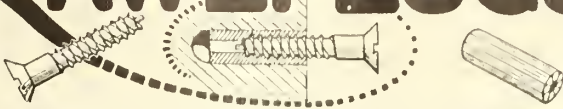
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Toronto

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THE EXPANSION OF RAWLPLUGS ENSURES A STRONGER HOLD

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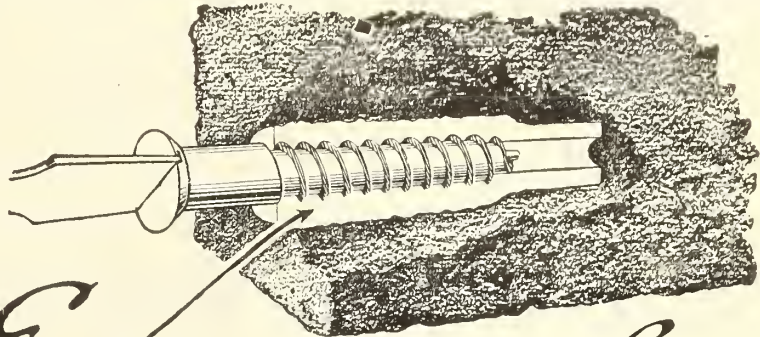
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Sterling Specialties
213 Somerset Building, Winnipeg

H. G. Evans,
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Agents Wanted in Ottawa and Vancouver



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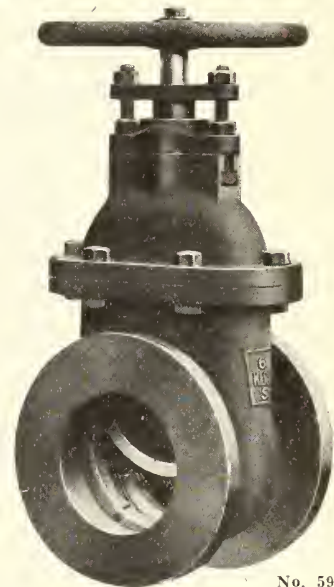
Note the design, the sturdy construction, note the compact and narrow face to face dimensions, observe the accessibility of the stuffing box; and the properly spaced bolting.

The Kerr Gate Valve here illustrated gives complete satisfaction whenever and wherever used.

Ask for Kerr's Valves



No. 60



No. 59

The **KERR ENGINE COMPANY**
LIMITED

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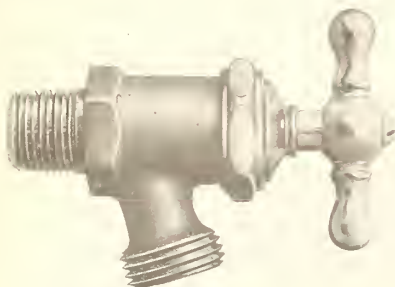
Valve Manufacturers

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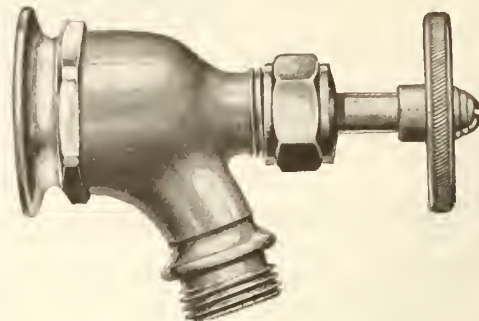
That give **satisfaction every day** in long service. They make the dealer's name stand for **reliability**.

They **build a permanent business** for the dealer on **solid ground**. The customer will **come back** now and the next time and **keep coming**.



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Sturdy
Boiler Drain
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Sill Cocks



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Beaver Brand Enamelware by its ability to meet the highest demands for service under all conditions, has established itself in the confidence of the public to such an extent that each month witnesses an ever-increasing demand for products of Beaver manufacture.

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SANITARY ENGINEER

PLUMBER AND STEAMFITTER OF CANADA

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PUBLISHED TWICE MONTHLY

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No. 8

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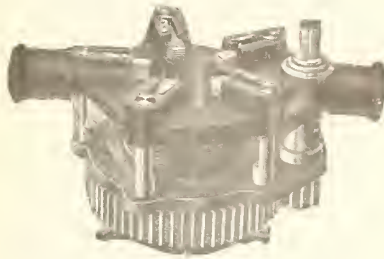
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In these beautifully designed machines there are no complicated parts to get out of order; they work smoothly, rapidly and accurately. No time is wasted by constant adjustments or failure of parts; they are always on the job.

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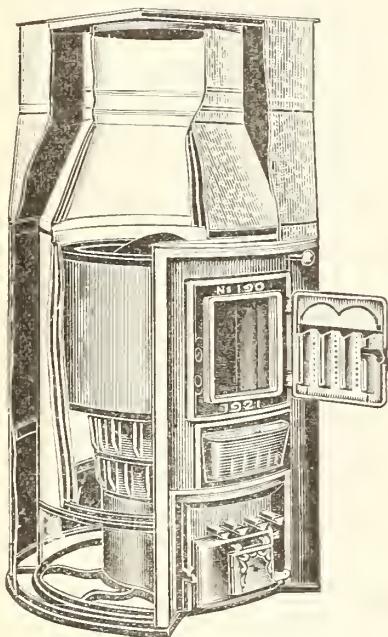
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Costs One Quarter The Price of a Steam or Hot Water Job

There is true economy in the installation of a Banner Pipe or Pipeless Furnace.

In farm districts, particularly, this economy is regarded as a very desirable thing.

Farmers everywhere who will not even consider a steam or hot water installation are getting rid of stoves and putting in Banner Pipe or Pipeless Furnaces.

Every stove heated house in your territory is a real, live prospect for these better built furnaces that require no "service" or repairs.

Write to-day for attractive agency proposition.

Banner Pipe Furnace
Banner Pipeless Furnace
Banner Pipeless Wood Furnace

The Galt Stove & Furnace Co.
Limited
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Novel Series of Meetings Big Help to Plumbers of Hamilton, Ont.

Series of Five Dinners Conducted This Winter Addressed by Speakers on Topics of Current Interest—Idea Being Copied by Other Cities—Speaker at Last Meeting Makes Strong Plea for Service Among Plumbers

By Staff Representative Sanitary Engineer

AN INNOVATION which has proved very helpful to the plumbing and heating craft in the city of Hamilton, Ont., has been the conduct of a series of dinners every two or three weeks throughout the mid-winter season. The idea was originated and has been pushed to a successful development by the combined effort of a group of men including C. F. Rogers, local manager Standard Sanitary Mfg. Co., Percy A. Moore, President of the Hamilton Master Plumbers' Association; C. G. Stewart, Secretary of the association, and Wm. Newell.

The meetings have been highly successful and are not only original in form but also in the fact that they are conducted independently of any local association of any kind. The gatherings are attended by an average of approximately fifty local plumbers, this being a very high percentage of the number of plumbers located in the city. Dinner is commenced at 6 p.m. during which interest is maintained by the singing of songs and the contribution of various numbers by both local and outside talent. One chief speaker is secured for each dinner, the idea being to have an entertaining and educational talk on some subject of interest to the trade. This address is limited to conform to the schedule which is strictly adhered to throughout. The only other speakers to be heard are brief remarks from any visitors or announcements by the chairman of the results of bowling or other activities in which those present are interested. The meetings are brought to a close sharp at 8 p.m. so that any evening engagements may be kept.

Five Meetings

The series has consisted of five meetings this winter, the fourth of which was attended by Sanitary Engineer on the evening of April 11. The fifth and concluding meeting for this season will be held on May 2, when H. E. Rooke, Page Hersey, Ltd., will be the speaker. The meetings this winter to date were addressed by the following men:—

February 28—M. J. Quinn, National Equipment Co.; March 14—K. B. Allison; March 28—Messrs. Burleigh and Twaits, Mueller Mfg. Co.; April 11—Capt. Macdonald, of London, Ont. (in place of E. H. Gurney, Gurney Foundry Co.).

The tickets for the meetings were sold in series for \$5.00, being \$1.00 for each night. Next winter it is planned to elaborate on the idea with a more extended list of meetings, for it has been felt that much good has resulted from the social standpoint as well as the educational. It is expected that from sixty to seventy-five plumbers will attend the regular meetings next winter.

Mr. Rogers stated to Sanitary Engineer that the plan has been developed with the idea of social intercourse, educational betterment and in general to raise the respect for the plumbing industry in the eyes of the craft themselves and through them to influence the public. Some plans were also said to be under way for linking up with such educational effort the apprentices now undergoing a course of instruction in the city, with the idea of giving them a better appreciation of the industry with which they are identified and show them that the merchant plumbers are really interested in their welfare. It is planned to extend the functions of the organization next year through the medium of service committees which will have certain duties to perform.

Good Representation

At the meeting held on Wednesday, April 11, in the Arcade, Hamilton, Ont., Mr. Rogers announced that there was only one more meeting of the series. He expressed pleasure with the support which the meetings had been accorded, there having been 43 to 47 plumbers attend each meeting out of a total of from 60 to 65 plumbers in the city. Judging from the success which had attended the series, he thought a more extended series next winter would be justified. Some other cities were said to be much interested in the success of these meetings and it was said to be quite possible that the idea would be copied. Other wholesalers were also said to be showing much interest in the plan. Concerning plans for future gatherings, Mr. Rogers stated that the plumbers would probably be receiving invitations for motor parties to neighboring towns this summer. He was of the opinion that they might be arranged in June this year instead of waiting until midsummer or early fall as in past years.

Gordon Stewart announced the results of the bowling league, prizes to winners to be presented at the meeting on May 2nd. In group bowling P. Robb was highest with a score of 521 and A. Mellen next with 500. In the singles, J. Vickers was shown to be high man. The league standing was in the following order:—Journymen, Standard Sanitary, Master Plumbers No. 1; Crane Ltd.; Master Plumbers, No. 2; Marks Limited.

A splendid dinner was enjoyed, interspersed with many songs and other entertainment, to say nothing of the noble effort at revealing the power of mind of one L. Rogers over the mind and musical abilities of another J. R. Thompson. Captain Macdonald was introduced by L. Rogers, who referred

to the war and business record of the speaker as giving him plenty of material with which to support his address on Service.

"Service is vital to the life of every community," said Capt. Macdonald, pointing to one of the great needs of the plumbing trade in order to eliminate the impression held generally among the public that they are at the mercy of a great giant, the same giant being the plumbing trade.

"Tracing far back in history we find service of the personal kind, the service of the peasant to the overlord and so on up to the king. We can trace the direct line of service from the humble to the high. From that time on the personal aspect of service was succeeded by that which deputized others to do their bidding. A more collective body came to the front. Kings, lords and others swayed the masses. The people were subdued, with the result that different organizations banded together for protection and the advancement of their interests. Towns and countries also banded together.

"To-day we are getting back to the personal responsibility of the people themselves. Parliaments to-day are the masses united in one to express the will of the people and unless the people themselves are educated and unless they know what the needs of the people are then parliament will not be representative of public opinion. In the past many parliaments have got away from the idea of service, and as it is true of parliaments and nations so it is of individuals. Men have in the past ground the workers between the mill stones so that they got the maximum work from them at the minimum of expense, and they lived in luxury. But those conditions are disappearing. We are getting back to the time when personal service is so strong that we cannot sidestep it. Unless we get the attitude of personal service into our business we are not going to succeed. We have got to put it into our business to succeed.

"If we put shady transactions through and are unscrupulous then we may expect the community to pay us back in our own coin, but if we put into business everything that is honorable and just and extract our just reward then can we hope to be successful. We must put honesty into our business and do things in the proper spirit. The nation is merely the reflector of the integrity of its people. It is not what you get, but what you give that counts in the end."

Before the conclusion of the meeting, F. T. Holliday, advertising manager Sanitary Engineer, as one of the visitors, spoke briefly. Mr. Holliday congratulated those present for their foresight in attending such meetings for personal improvement and also the group of men who are responsible for getting the plumbers of the city to-



C. G. STEWART

Secretary of the Hamilton Master Plumbers' Association, who with C. F. Rogers, P. A. Moore and Wm. Newell, has assisted in organizing the series of meetings in Hamilton as outlined herewith.

gether in such meetings. He traced the comparatively brief trend of development in the plumbing industry, showing how recently medical authorities question-

ed the advisability of baths and other plumbing equipment. He pointed out the need for publicity and sound business administration, stating that the plumbing industry had suffered a good deal by insufficient publicity to its commendable features and too much publicity to the other side. He foresaw big possibilities through the extension throughout the country of such gatherings as are held in Hamilton.

Build Factory Addition

The Clayton & Lambert Mfg. Co., Detroit, Mich., makers of gasoline and kerosene fire pots and torches, are building an addition, 60 x 180 ft., to one of their factory buildings which will be completed about April 15th, to take care of the increasing trade.

Severs Connection With Canadian Plumbing Trade

F. C. Dannenberg, for some years calling upon the plumbing trade throughout Canada, with headquarters in Toronto, has gone to Chicago to the position of Western manager for Forged Steel Products Co., N. J.; American Tap & Die Co.; Nichols Bros., and Frank O. Wells Co., of Greenfield, Mass. He has opened branch offices and warehouse for these firms in Chicago.

No Wage Increase for Montreal Plumbers

Master Plumbers' Association of Montreal Would Not Consider Increase of Five Cents an Hour for Plumbers

MONTREAL working plumbers will receive the same wages this year as last, following the decision reached recently at a special executive meeting of the Master Plumbers' Association that they would not entertain the proposition of the working plumbers for an increase of five cents an hour for the coming season. This is true also of working conditions, especially with regard to the proposal for a separation between the work of steamfitters and plumbers.

A report was presented to the meeting by J. E. Walsh, chairman of the labor committee. This report recommended that the agreement as to wages and conditions which had been submitted to the Catholic and National Union last year should be continued during the present season, the time not being considered opportune for the increasing of building costs in any way.

The meeting, presided over by the president, George Delaney, agreed with regard to wages that the same scale which prevailed last year should continue this year, despite the desire of the men for a five-cent an hour general increase. This means a maximum rate

of 70 cents an hour for grade A men, 65 cents for grade B men, and 60 cents for grade C.

With regard to the control of apprentices learning the plumbing and steamfitting trades it was unanimously decided that this should not be a matter to be controlled by any labor union, but should be handled by the individual members of the association, as seemed to be the best interests of the industry.

An intimation had been made by one of the plumbers' unions that the plumbing and steamfitting trade should be kept entirely separate, so that plumbers could not work at steamfitting, nor steamfitters at plumbing. The master plumbers considered that the two trades were co-related, that there were plenty of handymen who do both, and that it would be a hardship to them and an additional expense to the public if any union regulations demanded two men to work on a job that could easily and properly be done by one. It was, therefore, decided that this matter should be left to the discretion of individual employers, rather than to any association ruling.

Direct Enquiries for Rural Sanitary Equipment From the Window Displays

Helps Create Favorable Impression on Mind of the Prospect, Especially Women, to See Equipment as it Appears Installed—Much Business Installing Pumps and Connecting Up Water Supply Systems for Stock Barns

I NTERESTING comments on the best methods of going after business in a small town and rural field were made to Sanitary Engineer by W. J. Boyce of Wingham, Ontario. He gave it as his opinion that his store window is by far the most effective means he has of advertising. It was he stated far more important to him than advertising in the paper which covered his immediate vicinity.

"In my opinion," said Mr. Boyce, "the display windows of any business man, especially those located in small towns, are most important and the very best means of advertising they have. I aim to keep my windows filled attractively with lines of merchandise in which the people of Wingham and district are interested. I figure that as far as my trade is concerned, that is the plumbing and heating business, every home owner or prospective home owner in either the town or the surrounding country is in-

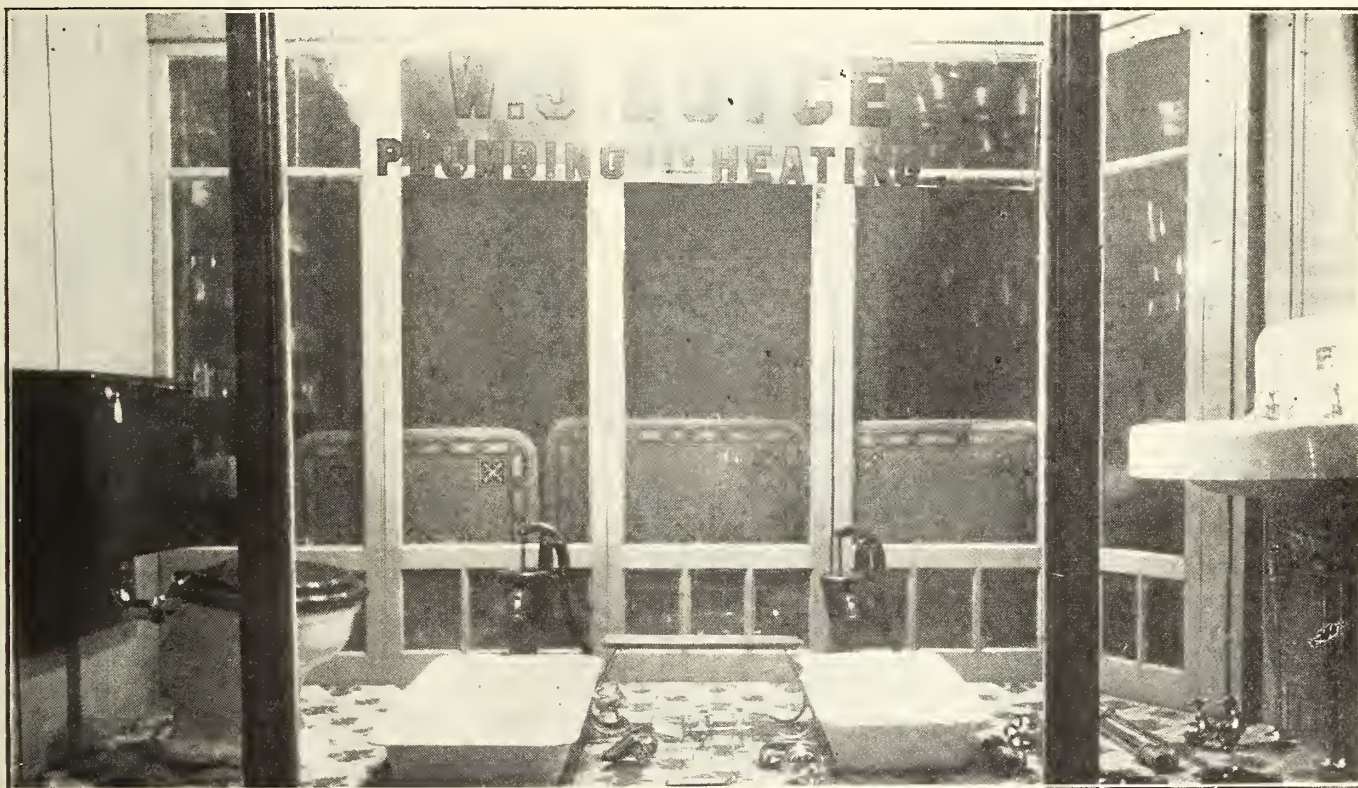
terested in plumbing goods or fixtures that will make his home better or more attractive. Such lines as toilets, baths, pumps, pressure systems, and bath room fixtures while they do not offer a wide range from a display standpoint, may be shown continually and changed around so that the window will frequently present an entirely different appearance, and hold interest. I find that I can trace immediate inquiries and direct business to various displays that have been put in. A straight bath room display will bring in inquiries from parties whose homes are without a bath, a display of bath room fixtures will bring immediate sales of these lines and so on. I aim to keep all merchandise that is on display, either in the windows or store in the best possible condition. If it is nickel plated goods it is clean and shining. If it is bathtubs or similar lines of enamelled goods they are carefully dusted. This is not only a help in making

sales but it is a distinct factor in helping to create in the minds of prospective buyers, especially women buyers a favorable impression of my shop and service."

An Important Point

Mr. Boyce stated that his many years of experience in the plumbing and heating business have proven beyond any question of doubt that women are really the originators of the majority of requests for improvements in their homes. They have to do their work in the homes and they want running water and all the conveniences that come within the field of sanitary and heating engineers. While they have to take the matter up with their husbands, and propose what shall be done and see the matter through, and in short plan and carry out practically the whole project, they are not always, says Mr. Boyce, given the attention and consideration they really de-

(Continued on page 18)



Showing small bathroom accessories and the larger kitchen and bathroom equipment as it appears installed, is one of the important factors used by W. J. Boyce, sanitary engineer of Wingham, Ont., to influence prospects. This is particularly effective with women customers, he states.

Jerry Learns That Overhead Expense is Not a Liability Which Makes it Hard to Meet Competitors' Prices

Jerry Makes Many Excuses to a Contractor for Not Meeting Competitor's Price But Vilet Teaches Him Something About Overhead

With apologies to Ring Lardner. Written for Sanitary Engineer by MAJOR L. L. ANTHERS, Managing Director Anthes Foundry Co., Ltd., Toronto.

Tarrabonne, April 13, 1923.

Dear Friend Al:

THE flours that bloom in the spring tra la have overlooked this burg so far. But the snow is beginnin to disapeer like eye-scream at a gardin party & the eye-sickles are startin to thin out.

Takin awl in awl sines of beeaautiful spring is in the offering.

Do you remember the pome Al what ust to run like this, "In Spring a young mans fancy litely turns to love?" Well that's how I feal but I havent bin getting a hole lot of incurragement laitely.

I found another weigh in witch baseball vs. plumbing differ. You know in baseball compitition is the life of the bizness. If there aint no competing teams their aint nothing dooing & you might as well hang up yr. bats & etc. fir want of oppisition.

But in the plumbing game compitition is sumthin diferent—you mite call it by a little word that begins with h & has an e in the middle of it and ends with 2 els. You may bee floteing along on the wings of persperity & suddinly a low down compettiter creaps in and upsets the hole appel-kart. I bumped up agenst it last weak in a meen weigh & of coarse got in rong with Vilet at the saim time.

Jim Powers is a big bilder and contractor in these partz & weeve done a wraft of werk fer him. He was allus satisfide to give us our price & we allus give him a good job so their was no comebak on either side.

1 day he drifted into the offis & sez, "Sea hear Jerry did you fergit to sharp-en yr. pensil on that last job you dun fer me?"

"Wots bitin you Jim," I risponds, "wasnt it all right?"

"O theirs no kik abt. the job but you musta got yr. prises outta a airy plain."

"Wot maiks you think that?" I in-quirde not jist sure wat his gaim was.

"Well I spose you no you got a compettiter in town."

"O you meen Jack Spuds hooze opened up a woodshed behinde his hous." You

see Jack Spuds is a jernyman hoo drifted into town a couppla months ago & hoo had bin doin a few odd jobs but nothin 2 matter much. Heed bin kept busy like ourself on "blow-outs" or freeze-ups & his presents had bin moar of a help than a obstickle.

"Yep," says Jim. "Spuds tells me he coulda slised neerly a 100 off that last job you done. He wants a chanet to figger on the next job & if he can save me 100 Ime 100 in, see?"

Jim was lookin at me reeprocheful like & tho I node we hadent stung him I felt I otta say somethin.

"Howd he no he cudda saved you a 100?" I asked nonchently.

"He lookt the job over and give me his opinion of the cost."

"Well he cuddent do it fer 1 plunk less than we done it if he had hour over-hed to carry. We gotta big show-room on

the mane st. with a lotta xpensif fixtrs. into it & we have a truck & hev to keap a bookeeper & etc. to say nothin of the management & incedentials. You cant do that on wind. Bill Spuds works from his woodshed & works hisself with a cuppla helpers & hasnt no overhed 2 keep up. You dont think wee can meat compettitin like that do you?"

I expected my aruymnet woulda shone him the lite of reezon. But it dident.

"Well thats yr. funeral Jerry," he sez as he goze out the dore.

I had hardely time 2 get my 2nd wind wen a laidys voice witch I well knew, caim from the box-offis.

"You big prune," she sez, "why dont you hire a pleeceman to chace peeoples away from the stoar?"

"Why wot hev I dun now Vilet?" I sez in an inered voyce.

"The lion a tock you jest handed Jim Powers will kill this bizness quickern ennythin else. Wot do you no abt. over-hed?"

"Seein as I pays fer it I aught 2 no a little," I come back with dignerty.

"O indead," she replize with a frosty air. "Praps if I resine thattle cut down sum of yr. overhead & you can meat compitticn better. You seam 2 think yr. overhed is a liarbility."

"Now Vilet dont get ruff. I had to tell Jim Powers somethin."

"O yes I no. You had 2 tell him somethin so you told him the 1st fool stuff that cum into yer nut."

"Oh Vilet lay off," I retortured with ageny. "What would you hev dun?"

"Id a told him the truth."

"Well dident I?"

"No you dident."

"Well wot is the truth? Ime from Missouri & willin to lern!"

"In the 1st plaice," begins Vilet, "when Jim powers sez that Spuds jest lookt at the job & give his apinion that he could do it for a 100 less Powers knowed as well as ennyboddy else hooze got enny hoarse scents that reel contrackters hoo nose there bizness dont figger that weigh. He was jist givin you a rize



"The flours that blooms in the spring, tra la, have overlooked this burg so far," says Jerry.

& you start at onct to blab abt. overhed."

"Well dont overhed amt. to ennythin?"

"Of coarse it doz. Powers nose that as well as you do. But insted of capitelizing yr. chanct you begins at onct to maik baby xcuses."

"Well what wood you hev done?" I sez hoapin to corner her.

"First Ida let Mr. Powers say all he hadda say & then ida tocked 2 him like 1 bizness man 2 an-nuther. Ida told him that his own commin scents wld. tell him that bizness is not dun at cost but at a fare prophet. That heed never had no cumbak on the werk that we had dun & that he node if enny-thing went rong weed maik it rite. Powers aint the only contractr. in theeze parts & he aint the cheep-est 1 either. You no that. Wen hee puts up a bilding he puts it up rite & he charges fer dooing it rite. Wen peeples want a supstanchial bldg. they goze 2 Powers not beecaws heez cheep but beecaws they get what they pay for. Wat hev wee got a show rume for tell me that?"

"Why to let peeples no wot weeve got 2 cell," I ancens wonderin wot she was gettin at.

"Doo you think that weed do as much bizness without a show rume?"

"We shure wood knot," I sez. "That show rume hez pade fer itself thrice over—itz a regular silent sailsman."

"Good," she retortz. "Then it dont owe us nothin."

"It sure doz not," I retalyates.

"Why do we have a combination type-riter & book keeper, meanin miself—do you think Ime heer jest to look perty?"

"You can shure do that Vilet," I smiles thinkin ide change the subjek.

"Can that stuff," she snortz back. "I aint lookin fer complements. Im askin you a question. Do I hev much time to lofe?"

"You shure do not," I answers truthfully & fealin a little hert. "I no yer bizzy all the tyme makin out bills & keepin the accts. strate & watchin the collectin & the time sheats & all that."

"Wot keeps me bizzy?" she contin-yers.

gowge the publik & weeve got a repy-tation fer speed & qualitie. We can cleen up a job in a weak that ud take Spuds a month 2 doo. Even with his woodshed fasilities he cudent beet hour prises unless he wanted 2 werk fer fun. It wont taik him long to get moar fun than hee wants if he taiks on a few jobs at cost + minus."

"Well wots overhed ennyweigh?" I asts.

"Wots overhed? Why the weigh you let loose on Jim Pow-ers you aught 2 B an authority. Why do you ast a ignerent yung wooman like me?"

"Aw Vilet pull in the hooks. Youve got me plum loco. I no I aint no wizzerd at stutisticks like Blab-some & Ime willin 2 lern."

"Well overhed is nessery & incontrollable xpenditchers," she started off cam-min down a bitt. "Overhed to a bizness is just as natcheral as a roof on a hous. But if a man wants a lot of fancie tyle and gingur-bred & wether cox in plaice of honest-to-goodness ev-ery day shinguls why hes spreadin his overhed & gettin into on-nessery xpenditchers. Of course itz not

xackly the saim as a bizness but it surves as an exampel. A bizness has to pay the tacksus the investment on the showrume the incydentials of manaig-ment & etc. jewdishus advritizing & gen. servus & etc. which is rite & Propar. But wen the mgr. trize 2 put on the dogg with a car biggern the biz, cann efford & lodes up with a lot of stock & fikturs. & etc. wat he cant get rid of then heez startin on the rode to useless xpend-itchers & xtravaganzas wottl finel leed him to bankrupture rune & finel dis-sallusion."



"Well, that's your funeral, Jerry," he says as he goze out the dore.

"Why on acct. the weigh the bizness has groan."

"Verry well why do you hev to grouce abt. yer overhed?"

"I aint groucin," I pleeds, "I aint sayin a werd."

"But you did to Jim Powers. Yer like the old dame in the Pine St. castel whats alwys complainin wot a respon-sabilitie it is 2 hev so much money & wot a disadventaige it is 2 B rich. Why the size of hour bizness has cut down the overhead 2 a minimum. Wee bye in quantitys & wee bye rite. We dont

"Hot stuff Vilet," I commence as I likes 2 here her cut loose on reel dictinary verds.

"An ettractif plaice of bizness with the frills cutt off were peeples gets there moneys werth & humane treetment is allus an assit. Sure theris allus someone lookin fer something cheep & turns you down & they uzully gets somethin cheep & finds out laiter on that theys pade fer wat theys got & theys got wot theys pade fer. Prompt & perlite servus & honnest deeling never yet put nobody outta bizness so long as he had a hed fer bizness & didnt loose it wen somebody trize to pull a bluff on him. The propr kind of overhed maiks fer stabelity & good reppytation wile the rong kind leeds to suspishion & losses. The man hoo startz in a woodshed to evoid overhed & staiz in a woodshed fer the saim perpus uzully dize in a woodshed. Men ny a good man hoo hez a big & respeckable bizness to-day started in a woodshed but that was onlie threw fource of cicumstances. But that sort of feller maid up hiz mind to get outta the woodshed as soon as he cld. efford it. And this is the kernel of the hole argyment—the man hoo startz in the woodshed & had the ambit. & hoarse scents to get sumwhairs aint the man hoos goin arnd. & doin a job jist fer his waiges. You doant ½ to werk in a woodshed 2 B a prise-cutter & you doant hev 2 B a prise-cutter 2 werk in a woodshed."

I guess my ize as well as my tung was hangin out fer Vilet beegins smilin at me.

"Gee Vilet," I commence in admerashun, "were jew get all that?"

"By keepin my ize open & readin common scents insted of trash."

"You shure puts new lites on the sub-jek," I retortz.

"Thats why you dont hev 2 stall wen fellers like Jim Powers trize 2 taike a rize outta you. He nose as well as I do that Spuds is a woodshed plumber with a woodshed outlook. That kind of a feller cums & goze & they uzelly goze as oftin as they cums. If Spuds hed gone 2 Powers & jist sez give me a chanct 2 figger on yr. next job without nockin hour ferm at the saim time & then puts in a figger thats reezonible then heed B werth recognizen as a compettyter. But its the feller hoo goze arnd. tellin peeples theys bin stung on a job that never doz theihselves enny good nor the traid neeth-er. The man hoo is allus yellin 'shark' is uzually a sucker hisself."

"Vilet," I sez sereusly, "you hev giv mee mutch fude fer reflectn. Yer ded rite. You allus are."

Vilet smild agen.

I tell you Al. Vilets awl rite.

Yrs. till ferther,

JERRY.

DIRECT ENQUIRY

(Continued from page 15)

serve. He finds it excellent business to make suggestions and explain the reasons why certain installations should be

made when women bring their husbands to his shop to talk over improvements. Almost invariably he says the women back him up in every way and are a big factor in finally closing up the contract which needs hubby's O. K.

A Big Field

There is a big field Mr. Boyce believes for every sanitary and heating engineer in talking about and demonstrating on every possible occasion the importance of installing proper heating and proper sanitary conveniences in the home. That it is a profitable field he is proving constantly. One of the main things is to know your territory, he says, who to approach and how to approach them. Once a party gets started making improvements in his home and sees how satisfactory they are, it is usually easy to "sell" him on other things he needs. Carefully planned follow up work in such cases brings big and profitable results.

A BUSINESS OPPORTUNITY FOR PLUMBERS

A neat, white, bubbling drinking fountain has been installed in the waiting room of the G. T. R. station at Acton, Ont. New plumbing and toilet fixtures have replaced the former sets in both the ladies' and gentlemen's toilets. Further improvements will be made shortly. How about the other railway stations where poor facilities now exist?

Indirectly it brings other business, for the satisfied home owner is not slow to tell others in his neighborhood how well pleased he is with his new furnace, or his new bath room. Here also the women again play an important part. They are more proud of their homes than ever when modern conveniences are installed and urge other women to improve their homes also.

Believes in Co-operation

Mr. Boyce is a thorough believer in co-operation, not only among the men in the sanitary and heating business but among all business men in a community. What helps one helps all, he says, and what hurts one hurts all. In accordance with these views he invariably co-operates in such movements as the annual Dollar Day, doing his share in the special advertising that is done and dressing his window and store for the occasion. If the merchants are planning anything special and call a meeting to discuss the matter, Mr. Boyce is always in attendance and takes an active part. In doing this he believes he is

not only helping himself but the entire community.

Collections Important

Under present day business conditions he regards collections as a most important matter. In most of the small towns and in centers where a considerable portion of the trade is done with farmers it is difficult to avoid granting a certain amount of credit. As a result of these conditions it is extremely important to see to it that money required in the business is gotten in in good time. By sending out regular statements and following these up carefully but tactfully he says he gets through with little trouble and practically no losses. Sometimes extreme care is necessary to avoid giving offence to a good customer but it can always be managed, Mr. Boyce says.

In addition to the big field open in providing improvements in the homes, Mr. Boyce says there is a great deal of profitable business to be had in installing pumps and connecting up water supply systems for stock barns. In many cases the farmer will purchase a gasoline engine to furnish power and then call on Mr. Boyce to look after the piping to the stables, etc. Contracts of this kind run into hundreds of dollars worth of work each season.

In connection with the sale of bath-room fixtures, Mr. Boyce finds it pays well to have a continuous display in his store. Right up near the front door he has placed a large show case of modern design and very attractive. In it are shown bath room fixtures of all kinds and prices. The display case has paid for itself many times over in sales, Mr. Boyce states, not to mention the time saved in keeping the merchandise dust free. He finds it very profitable to include bath room fixtures as often as possible in his window displays. Invariably he says some inquiries result and if what is wanted does not happen to be shown in the window he can always supply it from the display case.

NEW WATER SUPPLY SYSTEM FOR BELLEVILLE

Belleville, Ont.—A special committee appointed to consider the report of Gore, Nasmith and Storey on the proposed improvement to present water works system beg to offer the following resolution which was unanimously adopted:

"That a new intake pipe, 30 inches in diameter, complete with suction wells for a filter system together with the necessary buildings for housing wells and pumps and one high lift gasoline driver pump be installed and constructed as early as possible and that Messrs. Gore, Nasmith and Storey be engaged to prepare plans, specifications in this connection with the above mentioned work."

In answer to an enquiry, Ald. H. Thompson said the expense would be in the vicinity of \$100,000.

Steam, Vapor and Water Heating

Motive Power First Necessary—What is a B.T.U.?—How is it Measured—Why Do We Have to Burn, or Consume Fuel?—Where Do We Lose Fuel Energy?

Written specially for Sanitary Engineer by EDWIN NEWSOME, Consulting Engineer
(Second Article of Series)

IN A former instalment of the above named subject the readers were told in story form of some of the great strides made in the service of heating; only the high spots were touched upon. And a little of the history in connection with the measuring of heat by the Fahrenheit thermometer, was referred to. The readers will now be given some ideas as to what heat is in such forms as relate to the heating of buildings.

To make this subject, the science of heating, a little more interesting, one requires to be shown a few simple, yet highly scientific experiments, which, in themselves do not appear to have much relationship to the heating of buildings. For example, to know how low temperatures are procured is just as necessary to the sanitary and heating engineer as to know how high temperatures are produced.

The writer conducted just a few of these simple experiments in his early days and found one in particular of value in actual practice many times soon after reaching this country. For instance, a number of returns to a steam heating system had frozen. To keep those frozen that had not burst, meant that several of these returns could be repaired without shutting down the plant. The art of creating frost by the use of snow and salt, and packing same around the part to be kept closed off, is very simple. Placing snow and salt in a cup, standing the cup in a saucer, placing the two on a stove not too hot, mixing the snow and salt, would freeze the water in the saucer in spite of the heat of the stove.

Freezing the Pipe

Then again, another example, using snow and salt as ingredients, supposing a water service is frozen beyond the stop cock and a new stop cock must be wiped on, by freezing the pipe in the

manner described, the work can be done in case the water service cannot be closed off.

And, just as extreme cold is a form of energy, so is heat. Heat causes every substance to expand, just as cold, extreme cold, causes substances to contract up to a point, then even cold causes, say, water to expand into ice. This action, whether expansion or contraction, is power-motive, active power. To prove this, water expanded by heat will form steam, and the pressure generated will operate engines, or will burst boilers or other containers.

Extreme cold will freeze water, and thus frozen if confined will burst the article in which the water is frozen. Some time after the civil war in the U. S. A. a great number of bombs (unexploded) had to be destroyed. A story is told that no one would buy them because of the danger from explosion likely to occur in destroying them. The story goes on to tell how a negro bought them, took out the fuse plug, filled the bombs with water, saturating the powder, plugged up the opening, and just waited for a frosty day. The frosty day came along and destroyed the bombs.

What Heat Loss

Now, when a heating engineer takes upon himself to instal a heating system in a building, there are a few things he must know, even before he can take the first step. He must know what heat loss is to be arranged for, by knowing what heat loss certain constructions will have to be allowed for.

For example, a brick veneered house, well built with tight air spaces, with double windows, well-fitted windows, and few, if any, openings not controllable will have one heat loss; a poorly erected building of the same kind

would require a greater amount of heating than the former.

A solid brick house without air spaces would not be as warm a house as one with air-tight air spaces, and so on all along the line. And it is the amount of heat lost which determines the size of a heating system. The climate conditions too, have to be given a lot of consideration, as well as the height above sea level.

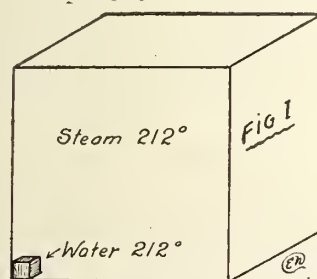
Water boils at 212 deg. Fahr. at sea level, but if a building was situated several thousands of feet above sea level, and the climate was cold, a very much different size of boiler and amount of square feet of radiation would be needed.

As a matter of fact, when a building is erected, what has been done? Why simply so much atmospheric space has been enclosed. Very well; the lowest temperature, say, is zero, then, according to the type, style, wall space, glass surface and other conditions, a certain heat loss would have to be provided for plus the required temperature in the building above zero to, say, 70 deg. Fahr. The question now is, how can we arrive at the heat loss of a building? We must have some basis upon which to arrive at this loss.

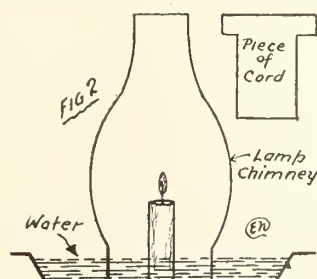
Heat Loss From Buildings

Thousands of experiments have been made to arrive at a decision as to the heat loss through the walls of buildings, and, according to the material used in the various kinds of structure, depends largely what the heat loss will be. All walls are to a certain extent porous, the most tight walls being those constructed with as nearly an air-tight space between the inner and outer wall, the air acting as an insulator.

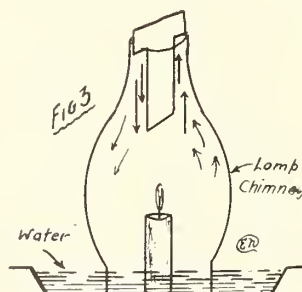
It is stated that even in the very best,



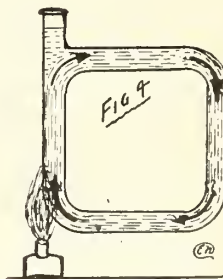
It Requires One Inch Of Water To Make One Foot Of Steam, Atmospheric Pressure Both 212° Fahr.



The Candle Will Soon Cease To Burn There Being No Fresh Air Supply To Assist Combustion



By Inserting Piece Of Card As Shown Above, The Candle Will Continue To Burn Brightly



Illustrating How Application Of Heat To Water Creates Circulation.

or shall we say, the most air tight wall, the air in a building will change once every hour when all doors and windows are kept closed. But to better understand the heat loss in buildings, one should study the conditions set up by the laws of cooling.

Three Ways of Transmission

For example, a body is cooled by heat being transmitted from one substance to another in three different ways, viz:—

1. By Conduction. 2. By Radiation. 3. By Convection.

1. Conduction.—If one end of an iron bar is placed in a bright red fire and left there for a short time, when it comes to be removed, the other end of the iron bar furthest from the fire also feels warm. This is caused by the heat being transferred from one particle to another, while the particles themselves still retain the same position. This is called "heating by conduction." Most metals conduct heat rapidly, but such heating takes place very slowly through liquids and gases. That is why the science of conduction is not applied to heating of buildings.

2. Radiation.—If the iron bar is now withdrawn from the fire and is held a few inches from the hand, the red hot bar will cause a sensation of heat to be felt; this is called "radiation," and is produced by the heat being transferred, or passing from the iron through the air to the hand. The heat sensation felt when passing by a radiator, or a fire or any other heated body is called radiation. Another example of radiation is that warmth experienced from the rays of the sun.

3. Convection is the method applied heating liquid or gases. If heat is applied to the bottom of a flask containing fluid, the bottom layers of the fluid expand, and therefore become lighter and are forced to the top of the vessel by the heavier particles from the top descending. In this manner continuous currents are caused in the liquid contained in the flask, and the heat is transferred from the lighter particles of fluid as they rise through the colder portions to the top of the flask. Convection does not occur in solids, as their particles are stationary.

Radiation as Applied to Heating Buildings

The fact that radiation is often referred to by heating engineers as some form of radiators would not, however, mislead a practical man. We are often heard to say "What kind of radiation is going into the building?" This query referred to the type of radiators. Now, what is meant, or rather, what constitutes one square foot of radiation? In figuring radiation, one is apt to say, "Well, I will allow 7 per cent. radiation in this building," and then when the figures, we will say, are 9,000, what does this 9,000 mean—9,000 what? because before arriving at the final amount of square feet of radiation, this 9,000 must be divided by 3, viz:—3,000,

which would be 3,000 square feet of radiation.

If 3,000 square feet of radiation is required to heat a building and 7 per cent. is the allowance, then the size of the building, or rather, the area to be heated, would be 128,572 feet. But why divide the 9,000 by three? Simply because all heating surface is first based upon one inch pipe and the 9,000 figures would mean 9,000 lineal feet of 1 inch pipe, and three lineal feet of 1 inch pipe equals one square foot of heating surface. This is further explained in this manner:

If we were to take three lineal feet of one web pipe and open it out flat at the weld, we would have a piece of sheet iron three feet long by four inches wide, viz:—one square foot of metal. This being so, if we had this same surface in the shape of a pipe and either hot water or steam therein, the pipe could be said to be one square foot of hot water or steam heating surface.

The amount of heat given off any heating surface largely depends upon the difference in temperature of the substances or bodies, such as metal or space through which the heat must pass. Suppose for example that the temperature outside a building is 59 degrees F., and inside it is 60 degrees, and let us assume that a radiator is filled with water at 60 degrees. Very little heat will pass from the radiator. But, if there is say, a difference of 25 to 30 degrees between the outside and inside, outside being the lowest, the radiator will soon cool off.

Therefore, when figuring the amount of radiation required to heat a building, the heat loss must be arrived at by finding out first the cubical contents of the building, the kind of walls, the difference between the maximum temperature required inside, the minimum temperature outside, also the area of glass, exposed walls, and number of doors.

Humidity

Few heating engineers to date are paying sufficient attention to making provisions for furnishing moist air in our buildings, particularly residences. Large buildings, it is true, when heated by a fan system may be furnished with air that is not real dry, because of the fact that many fan, or what is better known as indirect systems, are equipped with air washing devices, and the air thus washed is somewhat saturated with moisture.

The writer has given many years of study to the question of humidity in the homes, and as a result of two years' actual test can assert quite clearly that a house heated to 62 degrees is quite comfortable when the wet bulb is registering 56, which is a common condition when a proper vaporizer is provided, which was the case in the home of the writer.

It is hard to realize that in an ordinary eight-roomed home, as high as 8

gallons of water should be vaporized in 24 hours when the temperature outside stands at about zero, when such a quantity is vaporized, and the dry bulb registers 62, with wet bulb at 56, the air feels far more invigorating as well as comfortable than dry air at 70 to 72 degrees, and it would be safe to say that if the health authorities of the various provinces would lend their assistance in bringing into force a heating, ventilating and humidifying law, that tuberculosis would soon be a disease of the past, coughs, colds and many lung troubles are directly caused by improperly heated and ventilated homes.

A Few Simple Experiments

If it were convenient to place one cubic inch of water in a container and evaporate it in an open vessel one cubic foot square, a visible illustration would be procured that would show just how much steam is required to make one cubic inch of condensation, or in other words, one cubic inch of water being evaporated to steam, will make one cubic foot of steam at atmospheric pressure. Such steam would be known as saturated steam. The fact that both the water and the steam is 212 degrees illustrates the presence of latent heat in the water. The readers will easily realize the importance of having all condensation return back to the boiler, no matter for what purpose the steam is used. Because of the fact that the hotter water can be returned to the boiler, the less quantity of fuel is required to turn the condensation back to steam. The action taking place, viz:—of steam turning back to water is "Radiation." See Fig 1.

If the reader wishes to conduct a few simple, as well as convincing experiments, some of them referred to in this series of articles will not only prove interesting, but valuable as well. Fig. 2, while more of an experiment relative to combustion, still has a little bearing upon our studies. For example, no matter how well a system of piping is laid out, and installed, the air must have free access to the open, so that (in hot water heating) perfect circulation is assured. The same with steam heating systems, all air must be eliminated.

While Fig. 3 is very similar to Fig. 2, except that a card being inserted into the top of the lamp glass, a division is made, and strange to say, the air will actually pass in a downward direction on one side of the card, and in an upward direction on the other side of the card. This novel experiment, however, illustrates what has been the experience of the writer several times.

Faulty Chimneys

Buildings have been remodelled, two chimneys broken open at the foot and a larger smoke pipe put into the double chimney, and no matter what was done, one opening would draw slightly while an actual down draft was found in the

(Continued on page 22)

Questions and Answers Regarding Plumbing and Heating Practice

Natural Gas Heater and Kitchen Range on Range Boiler

Editor, The Sanitary Engineer,—

In a recent issue of your paper, you described a very simple way to connect a force and lift pump to a range boiler in the kitchen of a farm home. This is one of the most useful little suggestions I have seen for some time. I am firmly convinced that if once a farmer got this convenience in the kitchen, it would mean a forerunner of the complete bathroom. Where I find it rather hard to sell a whole equipment I am certainly going to sell as a starter the outfit you described.

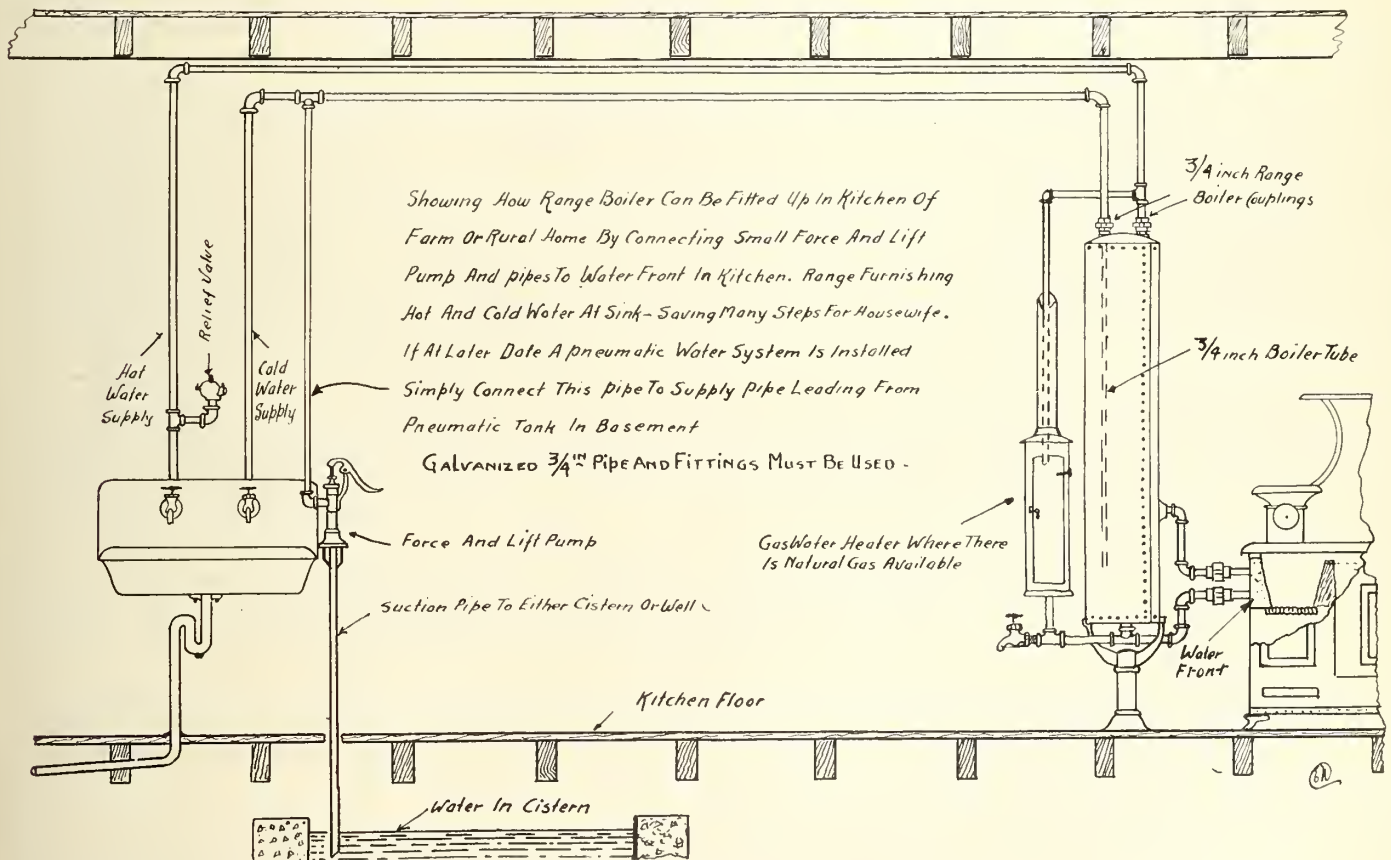
In our district almost every house in the village has natural gas. We have no water works, or sewage disposal systems. What I would like to know is, can a gas water heater be connected up along side of the range boiler as well as have the kitchen range fitted as shown in your previous article? If it can and it is not asking too much I would like to see how it is done. I am

one of your new subscribers and so far find the Sanitary Engineer both valuable as well as interesting.—A.N.S., Toronto.

Answer.—In the first place we are pleased to find that New Subscriber is finding the paper valuable. Next to answering the question. Where there is a supply of natural gas available, the usual gas connections of course, have to be made, and in addition to those, the water connections to the range boiler can be made as shown in the accompanying drawing. If however, there is lots of room between the kitchen range and the range boiler, the bottom pipe from the gas water heater may be connected in to the bottom pipe leading from the kitchen range to the boiler, and the top pipe from the gas water heater connected to the top hot water supply as shown, and as close to the boiler as possible.

When making this connection it is just as well to use a tee $1 \times \frac{3}{4} \times \frac{3}{4}$, with a one-inch close nipple into the boiler, then use a union coupling at the top of the tee. All, or at least all reliable gas water heaters have union couplings fitted to them and these can be used in place of extra unions. There is one care to be taken and that is that the piping must be perfectly in line when using the gas water heater couplings in the way suggested.

In installing gas water heaters, no matter whether natural or artificial gas is used, a well fitting flue and set of pipes must always be connected up to a good flue. It is quite in order to have a key or damper in the pipe, so as not to permit the chimney to draw too much of the heat away. Most of these small check dampers have a couple of holes in same, so that the flue pipe cannot be entirely cut off. A great deal of heat can be saved if the range boiler is covered with a regular asbestos jacket. These can be procured from the regular supply houses.



Patterns for Cornice Miters of Different Angles

Written for Sanitary Engineer by O. W. Kothe, Principal, St. Louis
Technical Institute, St. Louis, Missouri

THE making of cornice miters and gutter miters is much the same as elbow angles. Our sketch in this case shows a cornice running around the top of a building which has 45 degree miters and also a square miter, with a bay window construction containing considerable metal work below it. At "W" we show the method of treating an angle which we will say is M-N-O. Set dividers to M as center and any radius, strike arcs as at a and b. Then reset to another radius, preferably greater, and using a and b as centers, strike and cross arcs in point X. Then through N draw a line at X-N, extending it, which makes a true miter line for both parts of the angle.

At our working drawing elevation we have the profile of cornice which we may say represents the bay window crown mould. Draw the design as shown and divide all curves in any number of equal parts, numbering points and bends as shown. Now in plan the angle is B-D-E and where D-C is the miter which is established the same as is explained at "W." Observe the wall line E-F produces a butt miter. So from each point in the profile of elevation, drop lines into plan to the miter C-B and from here extend them to the wall line E-F.

To set out the pattern for front "A" pick the girth from elevation as from 1 to 13 and set as 1-13 in pattern. From each point drop stretchout lines and then from each point in miter C-D extend lines over to intersect those of corresponding numbers and that will give you the miter cut as shown in pattern "A." The miter cut for the angle in pattern "B" is the same and can be marked direct from the pattern "A." So pick the girth from the elevation detail and set off as 1-13 in pattern "B" and develop as shown, which will give the miters desired.

Observe the elevation has an altitude of 2-13, while it only has a projection of A-B in plan, and by working it in this way we make returns. The pattern for the roof of window is comparatively simple, as it can be usually made in several pieces and measured direct from the roof and needs hardly any development.

STEAM, VAPOR AND WATER HEATING

(Continued from page 20)

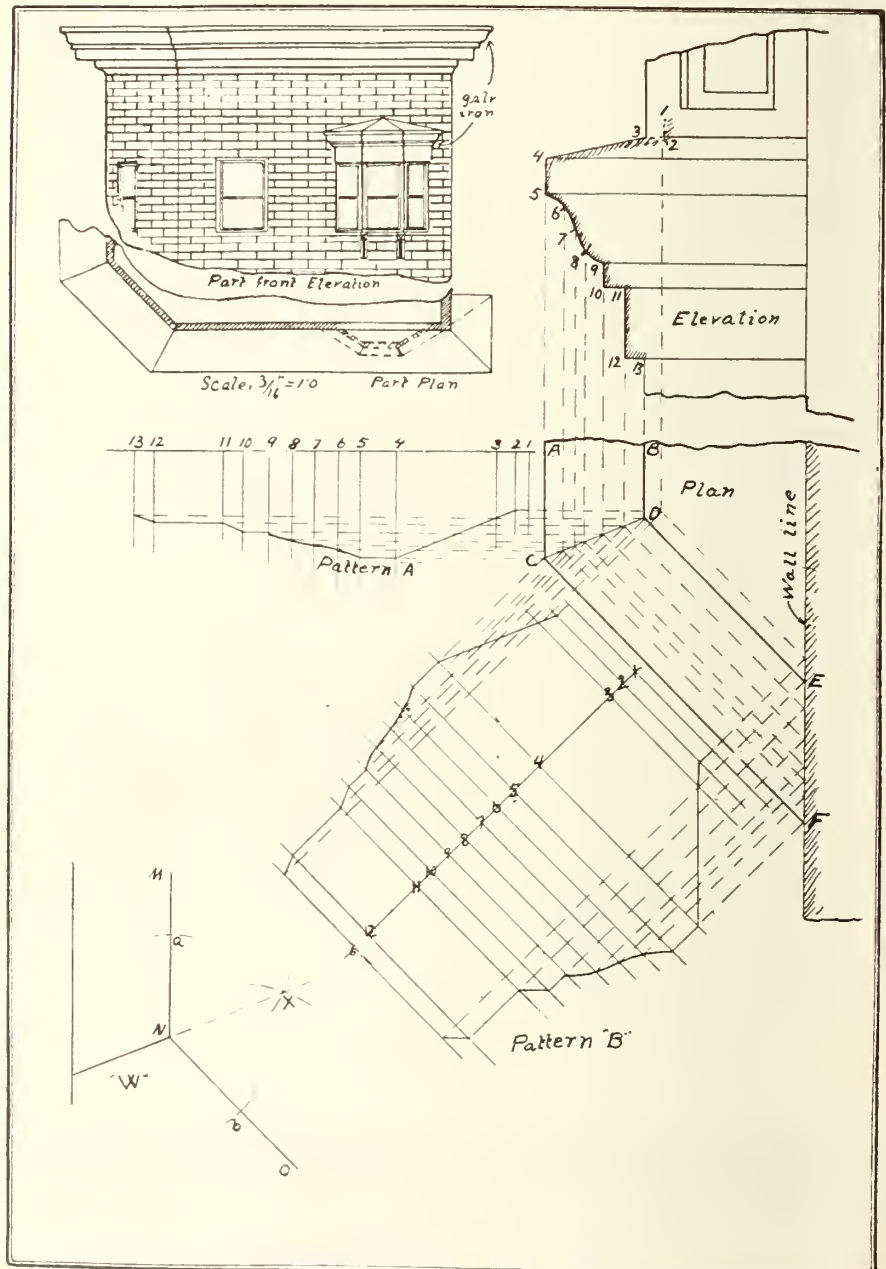
other. When such a condition arises, there is no other remedy but to cut out the division between the two and make one large chimney. The trouble caused by the troublesome division is clearly explained by the illustration, Fig. 3.

The basis of all hot water heating is that heat is first applied in some way or other to a body of water, and in all cases such water must be enclosed in pipes and fittings all in true circuit with the heater furnace or boiler, or whatever medium used that will transmit heat to said water.

Before water will circulate it must be made lighter by heating, (see Fig. 4), lighter meaning that that portion of water in the furnace must be lighter or of a higher specific gravity than cold water. The action of heating water, therefore, is the transferring of a portion of the products of combustion to

water, thus creating action, energy in the water, and let it be stated that much fuel is consumed before any apparent heating result is procured, and, when a body of water has been heated, water being a poor conductor of heat, it retains the heat for a considerable period of time. Such a condition which is quite natural, makes hot water heating sometimes very undesirable, yet at the same time, when a constant heat is required, and a hot water heating system has been gotten thoroughly under way, the building is not likely to cool off if the fire goes down.

(To be Continued)



Helps of National Trade Extension Bureau Reproduced in Sanitary Engineer by Special Permission and Arrangement



THIS will introduce to the Canadian plumbing and heating industry, the helps of the National Trade Extension Bureau which are thus made available in Canada through a special arrangement concluded by Sanitary Engineer, Plumber and Steamfitter of Canada. The details of this unique arrangement were outlined fully in the last issue, and the service makes its bow in the succeeding pages.

THIS important service will include suggestions for window displays of plumbing and heating equipment, with full details given by which any handy man can complete them. These window display suggestions do not involve any expensive material and can be arranged in a short time by following the directions given.

THESE window displays will treat with a variety of subjects, each carrying a direct seasonable appeal and linking up with "Bath a Day," "Heat by Radiators," "A Bath in Every Home," and other such campaigns which are conducted throughout Canada and the United States during the year.

ANOTHER important branch of the service is the advertising copy suggestions as appearing on the following pages. Each of these is illustrated with attractive cuts and these may be secured from Sanitary Engineer at low cost as quoted in catalog. It is the intention of this department to help raise the standard of advertising done by plumbers and heating engineers and thus make such advertising more effective. Send to Sanitary Engineer, 143 University Ave., Toronto, for catalog illustrating electros available with prices.

A BIG list of other illustrations are on hand with electros ready to be forwarded to you. The illustrations shown on these pages are but samples of the extensive service available.

COLLECTION letters, articles on office and shop administration, training of apprentices, etc., will also appear on this section from time to time.

WATCH for this section in each issue of Sanitary Engineer. You will find many timely helps for all branches of your business.

Advertising Suggestions for April



Protect health

by having a modern, sanitary bathroom in your home. Bodily cleanliness is essential to health. Every member of the family is benefited when there are adequate bathing and toilet facilities in the home.

Frequent bathing

is a safe, reliable tonic. It strengthens the body against disease. It is difficult for sickness to attack a body protected by cleanliness.

Comfort, convenience and economy are assured when we install the plumbing fixtures. Property value is increased by far more than the cost! Visit our store; see our display.

YOUR NAME HERE

Phone No.

Address

HOW TO ORDER advertising material

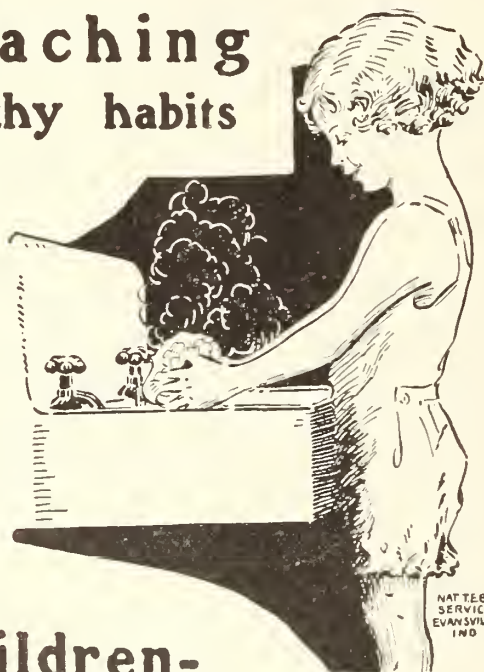
Advertisements in each issue will form a complete month to month advertising campaign for your use.

These are only a few of the electros available in this service. Complete catalog of all illustrations available to date will be mailed on request.

The catalog gives serial numbers on each illustration and the price is quoted. Prices range from 30 cents to \$1.00 for electros according to size.

In ordering from catalog write plainly the serial number of the illustration and send remittance to cover the order in order to save cost by avoiding book-keeping expense.

Teaching healthy habits



Children-

quickly learn lasting health-habits in the home provided with proper sanitary plumbing.

Cleanliness protects health, lengthens life and increases bodily vigor. There should be a bath in every home; large households need two or more. See our display of modern bathroom fixtures.

See our display of modern bathroom fixtures; ask for booklet.

YOUR NAME HERE

Phone No.

Address



A modern bathroom in a home

makes that home modern! A dwelling without complete, modern, sanitary bathing and toilet equipment is not comfortable or convenient. Health is endangered—sickness invited—by lack of proper sanitation.

Health in a home

depends largely upon the plumbing! Modern sanitation helps modern people live in a modern way.

Modern plumbing facilities can be installed in any dwelling, old or new, at a moderate cost, usually with little or no remodeling. If the family is large, more than one bathroom is necessary for complete comfort and convenience.

Send for our useful booklet, "Is Your Home Truly Modern?" A phone call or post card will command our best attention.

YOUR NAME HERE

Phone No.

Address

Bathroom "jewelry"

Every bathroom should include a medicine cabinet, soap dishes, towel bars, tumbler holders, tooth brush racks and a bath stool.

These small fittings complete the usefulness and comfort of any bathroom. We have a full display of modern, easy-to-clean bathroom "jewelry." Visit our store.

YOUR NAME HERE

Phone No.

Address

A Shower is a Tonic



for everyone who uses it. Add a modern shower to your bathroom and you can enjoy a cold, invigorating needle spray, or a hot, sleep-inducing shower, instantly.

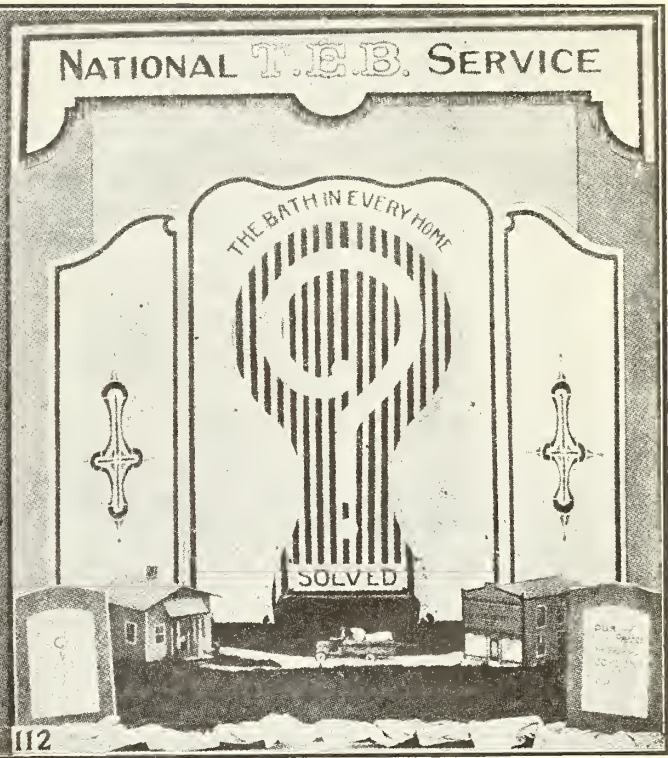
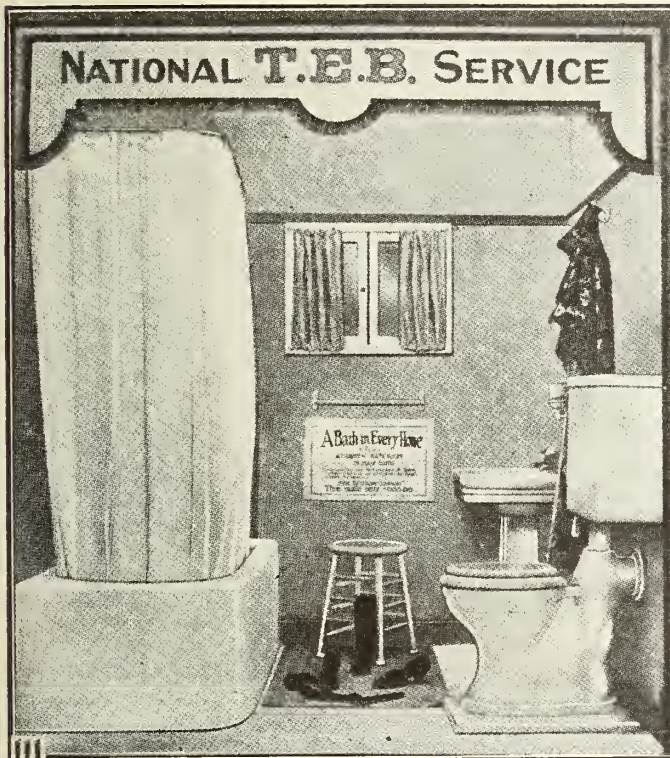
Shower bathing is hygienic and delightful. See the showers on display in our store, at moderate prices.

Phone No.

Address

YOUR NAME HERE

Two Timely Window Displays



WINDOW display on the left is an offering of the conventional bathroom display with a humanizing touch contributed to it.

Place in your window a high grade three-piece bathroom outfit in a manner to display the fixtures to the best possible advantage. Be sure to include a built-in shower and a shower curtain.

Borrow from some of your merchant neighbors, the negligee robe, hose and slippers, also the bath mat, which are

shown in our picture. Make use of these in a manner similar to the one shown in the photograph.

By leaving the shower curtain drawn, and exhibiting these articles of intimate feminine apparel in this way, a great deal of what would otherwise be a very stiff appearance, is removed. This little touch in this window carries suggestion of actual human occupancy to relieve the severity of a mere exhibit of fixtures.

It would be well to use only one dis-

play card in this window directing attention to the idea that there should be a bath in every home and quoting a price on the fixtures exhibited.

Window display on the right is one that will excite a great deal of attention and serve to advertise your store very effectively as a place where the bath in every home question can be easily solved.

For this display, a false floor should be built in your window commencing

(Continued on page 40)

Claims Loss of at Least \$80,000,000 to Manufacturers, Wholesalers and Retailers From Government's Levy on Sales

President of the National Drug and Chemical Co. Declares Sales Tax Has Not Been Passed On As Intended—Suggests Another Plan of Applying Tax—Suggestion Submitted to Finance Minister

Address delivered before the Executive Council of the Canadian Manufacturers' Association by CHARLES W. TINLING, President and General Manager of the National Drug & Chemical Company of Canada, Limited.

Editor's Note:—The question of the sales tax and its application is one of the liveliest subjects before Canadian business men to-day. Interest in the subject is not confined to any one branch of the trade. Manufacturers, wholesalers and retailers are equally interested in the sales tax. Many deputations have visited Ottawa in an endeavor to have changes made in the mode of operation, and it is rumored that some changes at least will be announced in the budget of the Finance Minister, which will be brought down in the near future.

The accompanying article is an address delivered before the Canadian Manufacturers' Association by Charles W. Tinling, President and General Manager of the National Drug and Chemical Co. of Canada. The address is reproduced in full, because many manufacturers attending the meeting stated that they would like to secure printed copies in order to give close study to this important subject. The article will prove of great interest to all branches of the trade and Sanitary Engineer will welcome further suggestions or contributions on the subject.

MR. TINLING'S address follows:

This address shows:

(1) That contrary to the intention of the government and to the wording of the Sales Tax Act, all the Sales Tax paid on an article cannot be and is not passed on to be paid by the public who are the ultimate consumers.

(2) That because of the wording and the operating of the Act some manufacturers and the majority of the wholesale and retail trade have been forced to absorb the greater part and in many instances the whole of the Sales Tax which has entailed losses aggregating, it is estimated, to about \$80,000,000 for these three branches of the trade.

(3) Details of the suggestion submitted to the Honourable Minister of Finance whereby the three branches of the trade would be put in a position to pass on the Sales Tax to the public or ultimate consumer, thus avoiding further loss for the trade, and likewise producing additional Income Tax for the government.

(4) Showing that the proposed plan, while not increasing the price of the goods to the public, will yet provide the government with many millions additional revenue.

Unable to Pass on the Tax

The intention of the government when the Sales Tax Act was passed in 1920 and in the amendments, was beyond question that the total sales taxes should be passed on and paid by the public, who are the ultimate consumers, as evidenced by the following words in Section 19 BBB:

"But such a tax must not be included in the manufac-

turers', producers' or wholesalers' costs on which profit is calculated."

These words can only mean that the government expected and intended that the price at which goods would be sold by each seller would include all previous sales tax paid on such goods.

The operation of the Sales Tax, however, has in the majority of instances, resulted in certain handlers of the goods being unable to pass on the tax, with the result that such section became losers by the tax they could not pass on, and consequently were having to pay an unjust taxation.

At the present time the three classes of trade, viz., the manufacturers, the wholesalers and the retailers, may be divided into camps. One camp consisting of those manufacturers who are passing on the entire tax to the next buyer, and those wholesalers who have been able to get the manufacturers to make an allowance equal to the sales tax that has to be charged on the invoice, and those few retailers who have been able to raise the retail selling price of the goods and thus collect the sales tax from the public. The number in this camp is small as compared to the number in the other camp.

The other camp consists of those manufacturers who are absorbing part or the whole of the sales tax instead of charging it forward, those wholesalers who are unable to pass on the whole or part of the sales taxes they are paying, and those retailers who are unable to pass on the sales tax but have to sell their goods at prices which do not include the Sales Tax. The number in this second camp is very large.

The following table shows the rate of sales tax in force in the years 1920, 1921 and 1922:

	1920	1921	1922	Increase
Tax on Sales by manufacturers or producers to wholesalers or jobbers...	1%	1½%	2¼%	125%
Tax on Sales by manufacturers or producers to retailers or consumers...	2%	3%	4½%	125%
Sales Tax on importations by manufacturers, wholesalers or jobbers.....	1%	2½%	3¾%	275%
Sales Tax on importations by Retailers or Consumers	2%	4%	6%	200%

Revenue From the Sales Tax

While the above rates of taxation may individually appear low yet the pyramiding of the tax on the same goods passing through various handlers means that by the time the goods reach the public a revenue has been paid to the government of not less than 12%, as shown on Table No. 2, on the value of the raw material. In many instances if the goods pass through more than three hands then the rate becomes higher.

The revenue collected by the government from sales tax was:

In the period ended 31st March, 1921.....38 million dollars
In the fiscal year ended 31st March, 1922....61 million dollars
Est. in the period ended 31st March, 1923..90 million dollars

The number who have been unable to pass on or absorb the tax has not decreased but as a consequence of the taxation the burden has been getting steadily heavier until it has reached a point that is really unbearable.

Of the 189 million dollars (\$189,000,000) collected from the sales tax a liberal estimate is that 40 million dollars has been

paid by the manufacturers as sales tax on their purchases. Only a small proportion of this forty millions has not been passed on by the manufacturers in the price of their products. This leaves 149 million dollars that has been paid to the government by way of sales tax by the wholesale and retail trade of this country. The question is: What part of this 149 million dollars has been lost to the wholesale and retail trade because they have been unable through the wording of the Act and the force of conditions to pass on to the public as intended by the government?

It is not known how many wholesalers of every kind are carrying on business in Canada but the number is quite large. An official letter from the Retail Merchants' Association of Canada states that their lists show that there are 180,000 of all classes of retail merchants in Canada. The question is: What is the average loss per retail store through absorption of the sales tax?

Investigation by thirty-four retail drug stores situated in Montreal, Toronto, Hamilton and London, show that the sales tax cost each of these stores in the year 1922 an average of \$816.73 per store. If you put the average loss made by each retail store in Canada in 1922 at the absurdly low rate of \$125 per store that means that in the year 1922 the retail trade of Canada lost, because they were unable to pass on the sales tax, a sum of at least 22½ million dollars.

It is known that several wholesalers in the year 1922 lost by forced absorption of sales tax in one instance over \$45,000, and in the other instance over \$75,000. Some idea therefore can be formed of what the present sales tax is losing to the wholesale trade of Canada.

It is safe to say that of the remaining 149 millions collected by the government since the 1st May, '20, that from 60 to 70 million dollars has been absorbed and lost to the wholesale and retail trade of all kinds in Canada and to this must be added the amount that has been absorbed by some manufacturers and consequently lost to them.

How the Tax Has Worked Out

It is therefore fair to say that because of the wording of the Act and business conditions that certain manufacturers and the wholesale and retail trade have lost by way of taxation at least 80 million dollars while other manufacturers and certain wholesalers have been getting off scot-free of sales tax because the character of the merchandise they sell enabled them to pass on the tax.

Estimated division of sales tax collected:

Estimated collected from manufacturers...	40 million dollars
Estimated collected from wholesale and retail trade	149 million dollars
Total tax collected	189 million dollars

Estimated loss made by certain manufacturers because of impossibility to pass on the sales tax	10 million dollars
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Estimated loss made by wholesale and retail trade because of impossibility to pass on tax	70 million dollars
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Estimated loss to the three trades	80 million dollars
Estimated loss to government through loss of income tax on this amount.....	\$8,400,000

The foregoing shows:

1st. The present Sales Tax Act has resulted in what it was never intended to be, viz., class legislation, and is not doing justice to a large portion of the trade.

2nd. The result of the Sales Tax Act is that a very large section of the retail and wholesale trade is being weakened financially through the taxation.

3rd. Because of the loss incurred through the Sales Tax Act by the retail and wholesale trade and part of the manufacturers, their net profits have been reduced by the amount of the taxes they have been forced to pay and consequently the government has lost the income tax that it would have derived had the retail and wholesale trade and some manufacturers been able to pass on the sales tax.

In view of the fact that a very large proportion of the government's revenue of all kinds is collected through the man-

ufacturers, the wholesalers and the retailers, it is clearly to the interest of the government and the country that these three sections of the trade should be kept in the strongest financial position.

Everyone recognizes that the government must have revenue and everyone is prepared to pay his share of taxation and it is therefore but a matter of justice that the levying and collecting of the sales tax should be so arranged that it will be passed on to the public or ultimate consumer and the present class legislation removed.

The matter has therefore reached the point where certain manufacturers, the majority of wholesalers and the retail trade are taking active steps to try and get a change made so the original intention of the government can be carried out, viz., that the sales taxes should be paid by the ultimate consumer, viz., the public, but on the other hand there are certain manufacturers and wholesalers who are willing to see the present conditions continue because they suffer no injury from the present system.

It has therefore been suggested to the Honourable Minister of Finance that the sales tax should be abolished and in its place a special excise tax collected at the "fountain head," viz., at the customs on importations by all others than licensed manufacturers and on the sales of all manufacturers other than those to licensed manufacturers. Thus licensed manufacturers are to have the privilege of getting all their raw material free of sales tax whether imported or purchased from other manufacturers in Canada and in return the manufacturers will pay the government an excise tax on all their sales other than those sales to licensed manufacturers or on exports.

It has been recommended that the manufacturers should be compelled to absorb in their selling price this special excise tax in the same way that they absorb customs duties or freight and should not be permitted to make a separate charge on their invoices for this excise tax.

The natural question is:

1st. What rate of excise tax should the government impose?

2nd. What revenue would the government be likely to derive from this Excise Tax as compared with what it is now receiving?

The answer can be arrived at by the study of the following tables which show the operation of the present Act and the operation of the proposal made to the government based on a similar rate of taxation to what the government is now getting.

What Dominion Figures Show

In order to get some idea of what the manufacturers' selling values of their products are, the cost of the raw material in such products, the value added in manufacture, which includes salaries, wages, etc., and what the percentage advance on the value of the raw material to give the selling value of the products, the following table is given:

Table No. 1

The following figures are official and are the latest as they are supplied by the Dominion Bureau of Statistics:

	1917	1918	1919	1920
No. of manufacturing establishments	34,392	35,797	38,344	42,406
Cost of materials..	\$1,605,730,640	\$1,900,252,314	\$1,875,615,877	\$2,189,227,028
Value added in manufacture which includes salaries, wages, etc.,	\$1,409,847,300	\$1,557,784,661	\$1,645,115,712	\$1,830,144,841
or percentage advance on value of material..	87.8%	82%	87.7%	83.6%
or an average advance of 85.3% on cost of materials.				
Value of products..	\$3,015,577,940	\$3,458,036,975	\$3,520,731,589	\$4,019,371,869

The above table shows that the difference between the cost of the raw materials and the manufacturers' selling value represents on an average over four years an advance of 85.3% on the cost of the materials.

The following Tables No. 2 and 3 show the respective selling value to the public of one million dollars of raw material. These values include the salaries and wages of all manufacturing costs as well as the profit to the manufacturers, the advance of 25% on cost to make the wholesale values, and the advance of 50% to make the values at which the retailers should sell the goods to the public.

Table No. 2 is figured with a profit being put on the sales tax by the wholesalers or retailers, while Table No. 3 is figured without a profit being put on the tax.

Table No. 2		Table No. 3	
Materials	\$1,000,000	Materials	\$1,000,000
Sales Tax $2\frac{1}{4}\%$	22,500	Sales Tax $2\frac{1}{4}\%$	22,500
Cost of Materials ...	1,022,500	Cost of Materials ...	1,022,500
Add 85.3%	872,192	Add 85.3%	872,192
Manufacturers' selling value	1,894,692	Manufacturers' selling value	1,894,692
Add $2\frac{1}{4}\%$ Tax	42,629	Add $2\frac{1}{4}\%$ Tax	42,629
Cost to wholesalers..	1,937,321	Cost to wholesalers..	1,937,321
Add 25%	484,330	Add 25% on goods only	473,673
Wholesalers' selling value (if they were able to pass on the whole tax)	2,421,651	Wholesalers' selling value (if they were able to pass on the whole tax)	2,410,994
Add $2\frac{1}{4}\%$ Sales Tax.	54,487	Add $2\frac{1}{4}\%$ Tax	54,246
Cost to retailers	2,476,138	Cost to retailers	2,465,240
Add 50%	1,238,069	Add 50% on goods only	1,205,497
Price to public (if retailers were able to pass on the whole tax)	3,714,207	Price to public (if retailers were able to pass on the whole tax)	3,670,737
Sales Taxes derived by the Government on foregoing transactions would be:—		Sales Taxes derived by the Government on foregoing transactions would be:—	
	\$22,500		\$22,500
	42,629		42,629
	54,487		54,246
Total Sales Tax.....	\$119,616	Total Sales Tax.....	\$119,375

In explanation of the above tables under the present Act if a manufacturer bought raw material in Canada to the value of one million dollars he would pay a sales tax of \$22,500, thus making the material cost him \$1,022,500.

In Table 1 it is shown that the difference between the manufacturers' costs of raw materials and the selling values of their products is 85.3% advance on the raw materials, this being the average during the four years 1917 to 1920. By adding this percentage to the cost of the raw material we get the manufacturers' selling value of the finished product, viz., \$1,894,692 and this becomes the price to the wholesale trade.

Three Sales Taxes to Government

When these goods resell to the wholesale trade a sales tax of $2\frac{1}{4}\%$ or \$42,629 is charged and has to be paid by the wholesaler, thus making the cost of the goods to the wholesaler \$1,937,321.

In selling these goods the wholesalers are entitled to a profit of not less than 25% advance on cost, so that the wholesalers' selling value would be \$2,421,651.

When these goods are sold to the retailers a further sales tax of $2\frac{1}{4}\%$ or \$54,487 has to be charged and paid over to the government, thus making the goods cost the retailer \$2,476,138.

The least profit the retailer is entitled to ask is an advance of 50% on the cost so that the public should pay for the goods \$3,714,202.

It will thus be seen that out of the above selling value of \$3,714,202 to the public the government would derive three sales taxes, viz., \$22,500, \$42,629, and \$54,487, or a total of \$119,616, which is equivalent to nearly 12% on the one million dollars of raw materials.

Table No. 3 shows that when no profit is put on the sales tax that the selling value to the public of the one million dol-

lars of raw materials is \$3,670,737 and the government would get under this figuring three sales taxes of \$22,500, \$42,629 and \$54,246, or a total sales tax of \$119,375.

The following Table No. 4 shows the working out under the plan proposed to the government:

Table No. 4	
Materials	\$1,000,000
Add 85.3%	853,000
	1,853,000
Add .064%	118,592
Manufacturers' selling price to wholesalers.....	1,971,592
Add 25%	492,898
Wholesalers' selling price to retailers.....	2,464,490
Add 50%	1,232,245
Retailers' selling price to public.....	3,696,735
6% tax on \$1,971,592 =	118,295

Under the plan proposed, if the manufacturer got his raw material free of sales tax but was taxed 6% on his output, then the \$1,000,000 of raw material plus the advance 85.3% would make a value of \$1,853,000 but this will have to be increased by .064% so that when the manufacturers pay the 6% on their output in the form of sales tax to the government then there will be left to the manufacturers the \$1,853,000, consequently the selling value to the wholesalers would have to be fixed at \$1,971,592. 6% on this amount would give the government a sales tax of \$118,295 as against what they are realizing to-day on a similar amount of raw material, namely \$119,616.

When these goods are sold by the wholesalers they have to put on their profit, so that if an advance of 25% is put on then, the wholesalers' selling value would be \$2,464,490, and to this cost value to the retailers there will have to be added 50% in order to get the retailers' selling value to the public, or \$3,696,735.

A comparison of the selling value to the public as shown by Tables 2, 3 and 4 shows that on the basis of \$1,000,000 of raw materials to the manufacturer that under the suggested plan of taxing at the source or on the manufacturers' output, the public would pay a little less for the finished goods than they are paying to-day under the present system of sales taxation if the tax was in every instance passed on to the public as intended by the existing Act.

Advantages of the Plan Proposed

Of course, if the manufacturer imported the \$1,000,000 of raw material and paid the sales tax to the customs of $3\frac{1}{4}\%$ as the present Act requires it would vary the figures in Tables 2 and 3.

Having shown that the 6% tax on the manufacturers' selling value will produce quite as much revenue as the existing tax does on a like amount of raw material it would be well to endeavor to ascertain the amount of revenue that the government would derive by a 6% tax on the manufacturers' taxable sales.

Under the plan proposed a manufacturer would get all of his raw materials free of sales tax or of a special excise taxation which would necessarily lower the cost of his finished product. Likewise the selling value of it would be less than it would be if he had to pay a sales tax on his raw material as the existing Act requires.

If the manufacturer sold the whole of his products to licensed manufacturers then the prices he would charge would realize for him on the basis of the \$1,853,000 as shown in Table No. 4 but if he sold all his output to others than licensed manufacturers then he would include in his prices the amount that he would be called upon to pay the government by way of special excise and he would have to charge on the basis of \$1,971,592 for his output. Out of this the government would get a tax of 6% or \$118,295 on each \$1,000,000 of raw material as compared with what it is estimated that they are getting under the existing operation of the Act, \$119,616 per million dollars of raw material.

Because of the sales tax being included by the manufacturer in his sales price the same as customs duties or freight are, there would be no further tax to be paid by either the wholesaler or retailer, consequently these two classes of the

trade could fix their own selling prices, but if the manufacturer names the resale price for either the wholesaler or retailer then it will be up to the manufacturer to so fix his resale prices that the wholesalers and retailers will be put in position to realize a selling price that would give them their proper rate of profit.

The above plan has the great advantage of enabling the manufacturers, the wholesalers and the retailers to pass on the taxation to the consuming public while it has the added advantage to the manufacturer of not being called upon to pay any taxation until he had made his sales as compared with his having to pay the sales tax to-day on all his purchases of raw materials at the time of the purchase or when passing the goods through the customs.

A Materially Increased Revenue

The proposed plan has the great advantage to the government of providing a materially increased revenue, which statement is based on the following:

The latest government statistics pertaining to manufacturing that are obtainable from the Dominion Bureau of Statistics are for the year 1920 and show that the selling value of the manufacturers' product of that year were \$4,019,371,869. It is doubtful whether the selling value of the products manufactured in either 1921 or 1922 would have reached the above selling value, therefore to be on the safe side it would be well to estimate on the basis that the manufacturers' selling values totalled \$2,000,000,000 less than in 1920 and \$1,000,000,000 less than in 1917. If therefore you apply a 6% tax on \$2,015,577,940, there would be a revenue for the government of \$120,934,676, as against the \$90,000,000 it is estimated will be derived in the current fiscal year.

In fixing the taxable value at \$2,015,577,940 it would seem that ample provision has been provided for any shrinkage in the selling value of the manufacturers' products as well as such portion of sales not subject to tax which would become other manufacturers' raw material.

The foregoing has shown the selling value to the public of a million dollars of raw material whether calculated on the existing basis or under the proposed plan is about the same, and that the government would get about the same revenue under the proposed plan as under the old.

The \$90,000,000 it is estimated the government will realize from Sales Tax in the twelve months ended the 31st March, 1922, would on a 6% tax represent taxable sales of manufacturers to others than licensed manufacturers, of \$1,500,000,000.

This amount of sales would represent in raw material about \$800,000,000, as based on the Dominion Bureau of Statistics, shown on Table No. 1. A moment's thought will show that this must be a small proportion of the raw material used by the Canadian manufacturers in 1922 and that the government can get a largely increased revenue by the adoption of the plan proposed and not lay any burden of taxation on either the manufacturers, the wholesalers or the retailers.

Where the Government Loses Out

While it is true that under the proposed plan a manufacturer would not be called upon to pay a special excise tax on his finished products sold to a second manufacturer as his raw material, yet the government eventually gets the tax on those particular goods because the cost of them, or the first manufacturer's selling price, is included in the final selling value of the finished product on which the special excise tax will be paid by the final manufacturer. In other words each manufacturer that puts the goods through a process is increasing the final taxable value by labor, overhead and profit.

With the above in mind one naturally is led to the conclu-

sion that there must be a large amount of business that should be paying a sales tax that is not and the government is out revenue.

If, instead of adopting the taxation of 6% on the manufacturers' output it be made at the rate of 7½% then, as will be shown by the following Table No. 5, the manufacturers' selling value of the \$1,000,000 of raw material would have to be increased to \$2,003,093, because an advance would have to be added to the \$1,853,000 or .081% in order to leave the manufacturers, after paying taxes of 7½%, the realizable value of \$1,853,000:

Table No. 5

Material	\$1,000,000
Add 85.3%	853,000
	1,853,000
Add .081%	130,093
Manufacturers' selling value to wholesalers.....	2,003,093
Add 25% advance	500,773
	2,503,866
Wholesalers' selling value to retailers.....	2,503,866
Add 50% advance	1,251,933
	3,755,799
Selling price to public	3,755,799

Tax 7½% on \$2,003,093 = \$ 150,232
7½% Tax on \$2,015,577,940 = \$151,168,345

Such a change would produce a revenue to the government of \$150,232 for each \$1,000,000 of raw material as against \$118,295 on a taxable basis of 6% as shown in Table No. 4 and as against \$119,616 as shown in Table No. 2. It will be noticed that if the 7½% be adopted the total selling value to the public would be on \$1,000,000 of raw material, \$3,755,799 as against \$3,696,735 in Table No. 4, and \$3,714,207 in Table No. 2. Thus the increase to the public under the 7½% tax would be very slight as compared with what the public is supposed to be paying under the present Act as shown in Table No. 2, but a 7½% tax on manufacturers' output of \$2,015,577,940 would represent a revenue to the government of \$151,168,345 as against the \$90,000,000 it is likely to get in this fiscal year.

Reduction in Cost of Collecting

It will be thus seen that the suggested plan of giving the manufacturer his raw materials free of sales tax but taxing him on his output either 6% or 7½% and not allowing him to charge forward any tax separately has the following advantages:

First (a) MATERIAL INCREASE IN REVENUE TO THE GOVERNMENT.

(b) NO INCREASE IN COST TO THE PUBLIC.

(c) On a 7½% basis the increase in cost to the public would be trivial.

Second—It would at once remove the existing injustice to some manufacturers, the wholesale and retail trade by freeing them of the immense taxation they are now labouring under through having to absorb part of the sales tax.

Third—There would be a further increase in revenue to the government because the profits of the wholesale and retail trade would be increased due to the belief from the loss that they experienced from the sales tax and thus the government would get an Income Tax on the increase.

Fourth—The cost to the government of collecting and checking up the sales tax as at present would be very materially reduced because of the fact that they would have a very small number to collect the tax from as compared with the present large number.



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Guarantees Plumbing Work

A PROGRESSIVE step in advertising is that taken by The Progressive Association of Plumbing Contractors and Dealers of Cleveland. This association is using newspaper space to impress upon the public mind that of all construction and repair work, plumbing is of prime importance to both community and individual. The copy which appears over the cards of a dozen member plumbing firms says:—

"This Association guarantees the work of its members and will adjust without charge any complaint regarding defective workmanship, materials or overcharges. Address all complaints to the association, giving all details. Membership in this association is open to all plumbing contractors and dealers who will conform to its standards of practice."

This co-operative advertising plan has been used to good advantage by plumbers in other cities as well, and it has been found helpful in overcoming the prejudice which still exists in the minds of some people concerning the integrity and business ability of the plumber.

Saving Fuel Waste

THE FUEL situation in Canada and the danger of the possible curtailment of coal shipments into Canada from the United States has given impetus to the discussions concerning central heating. Experiments are being made to bring Alberta coal to the East and also other measures to provide adequate coal supplies but the question of economical operation of heating plants is one of supreme importance. There is no doubt a good deal to be said for central heating in eliminating individual service in attending furnaces, greater possibilities in the way of efficient use of coal and the resultant saving in cost of heating.

It has been argued by experts that the average efficiency of the Canadian house heating equipment does not exceed 50 per cent. owing to the heat value lost in other ways. On the other hand a central plant in charge of expert stokers would probably reach an efficiency of 60 to 70 per cent. after allowing for loss in transmitting the heat to its destination. And if soft coal is to come into greater use in future some steps might be taken for reducing the resultant smoke evil in the case of the central heating plant whereas such would be difficult under the present plan. The use of such coal has also proved dangerous in the hands of inexperienced users whereas stokers in a central plant would be well acquainted with the best procedure for burning such coal.

It is significant that advices coming to Sanitary Engineer from the United States are to the effect that many authori-

ties in that country are commenting on the proposed independence of Canada in the coal market, and are congratulating Canada on its progressive methods in developing its own coal and in developing the central heating plan.

Of course central heating has its limitations and its operation may only be economical under certain conditions. These are matters to be considered in discussing the matter fully.

Rendering Service

THE PROGRESS being made in organization by plumbers in various parts of the country is a splendid achievement. When a group of business men feel it necessary to get together for their common good, realizing their shortcomings, it is the first sign that progress will be made. These organizations are taking various forms. In one city the plumbers hold a series of meetings about three weeks apart throughout the winter. These take the form of dinners commencing at 6 p.m. and everything is run strictly to schedule, ending at 8 p.m. A good dinner is served, there is some entertainment, and one speaker on a subject of current interest. The gatherings have proved very educational.

In connection with such organizations in Canada there may be some good hints from the experience of brother craftsmen in other fields. For instance the Master Plumbers Association of Buffalo sends out a little folder to encourage members to come to the meetings. Each folder has some message such as the following: "Let's come together and get down to brass tacks. Don't let the officers do it. Your success depends on your efforts and what competition will allow you. Why not use the high speed clutch and have your competitor release the brake? Come across and let us know whether you are for expansion or whether you prefer to remain dormant?"

This association has membership signs to be hung in the shop of members and steps are taken to have these signs recognized as marks of efficiency, service and safety to the public and a guarantee of modern methods of sanitary installation. There is no doubt that such steps will help distinguish the industry and benefit both the industry and the merchant plumber. A Credit Bureau is operated so that members will not be taking any chances on customers. A Labor Bureau is also conducted to assist merchant plumbers to secure sewer laborers and plumbers when required. A Collection Bureau, Mutual Insurance and a department for selling surplus plumbing and heating equipment to others in the trade, are also features of this association's service.

The foregoing services are characteristic of an organization working in the best interests of merchant plumbers and it is only when such organizations make themselves so valuable to the trade that they can have any justification for existence. Fortunately the trend is toward more associations of this kind, anxious to render real service.

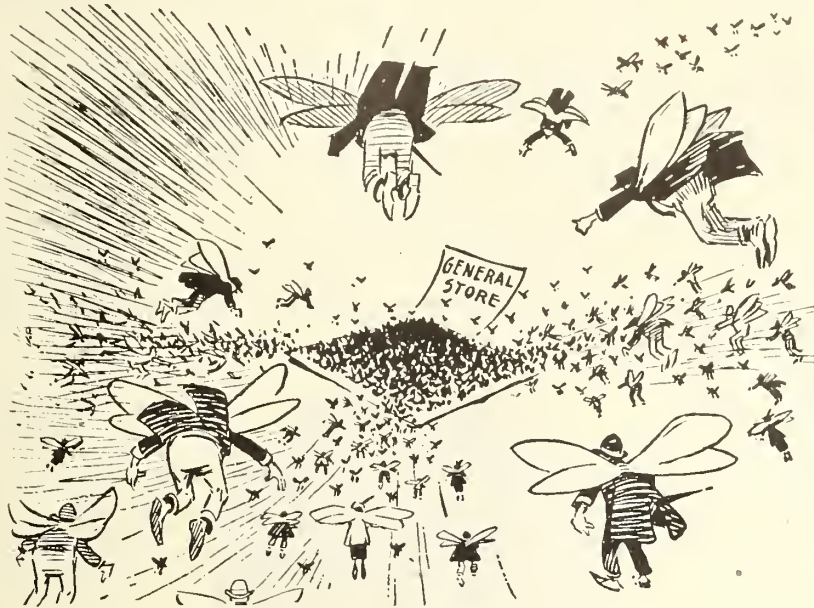
THE Combines Investigation Act, recently introduced in the House of Commons by Premier King, is causing a great deal of concern and arousing no little criticism among business interests. The measure, with its varied proposals, is not as yet sufficiently understood by all, to enable a wide discussion of its merits and demerits, but many organizations have already placed themselves on record as in opposition.

That the Government is going out of its way to interfere with business; that it is providing loopholes whereby disgruntled persons may cause no end of trouble and confusion for business; that the Government is going on the assumption that all trade combinations are bad and should be stopped, are some of the contentions set up in representations that have been made to Ottawa.

MINUTE MESSAGE

Written for Sanitary Engineer by FRANK STOCKDALE

(Co-operation Series)



The Fly Paper Stage of Business Has Passed

New conditions demand new methods. In no field of activity is this fact demonstrated more clearly and forcibly than in the field of business at the present time.

The automobile has taken the place of the horse and buggy. A network of railroads and electric lines cover the country. Thousands of miles of concrete highway have made travel not only convenient but inviting.

As a result, the old time "cross road" general store is fast disappearing. Its place is being taken by specialized stores, each one pulling in its portion of the trade which formerly was centered around the counters of the "general store at the cross roads."

Customers now go from store to store, from town to town, and from city to city seeking the kind of goods and service which please their fancy and their pocketbooks.

Canada's mail goes everywhere and publicity advertising pays its own way.

The business goes to the plumber who knows how to attract his customers and to keep them.

The successful plumber, the one whose shop is well patronized, always strives to keep a **good** assortment of stock at the **right** price and give the kind of service which brings his customer back.

Location still has some bearing, but ability to serve counts for more. Because—"The Fly Paper Stage of Business Has Passed."

THINK IT OVER—APPLY IT IN YOUR BUSINESS

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News Notes From Coast to Coast

Doings in the Plumbing and Heating Industry

NEW FIRMS

Broadview, Sask.—P. T. Wells is commencing a tinsmith business here.

BUSINESS CHANGES

Swift Current, Sask.—Hutchinson & Morrison, plumbers, have dissolved partnership.

FIRE LOSS

Winnipeg, Man.—E. Chapat, plumber, suffered fire loss.

LECTURES ON SANITARY PLUMBING

St. John, N.B.—Mrs. Emmeline Pankhurst will address audiences through the maritime provinces on the evils of communicable diseases, and necessity of sanitary plumbing. Mrs. Pankhurst is the former London suffragist.

OBITUARY

St. John, N. B.—Fred C. Owens, of St. John, a dealer in plumbing supplies as well as hardware, died suddenly in the East St. John County Hospital. Mr. Owens was manager of the Barry Supply Company of St. John. He sold plumbing supplies to a number of plumbing contractors in New Brunswick and Prince Edward Island.

ENDORSE SANITATION POLICY

St. John, N. B.—R. E. Fitzgerald, a plumbing and heating contractor of St. John, N. B. who was recently elected president of the Contractors and Builders Association of St. John, is an enthusiastic supporter of the sanitation policy of the New Brunswick department of health.

247 PLUMBING DEFECTS IN 2,567 INSPECTIONS

Hamilton, Ont.—The monthly report for February, 1923, giving in detail the work of the medical officers, was presented at the regular meeting of the board of health. The methods of the city of Hamilton regarding the laying of water mains were severely criticized by an officer of the provincial health department. The difficulty arose over a letter from a resident of Dunsmuir avenue to the provincial board, who complained that he could not get water mains on his premises because the city could not be guaranteed its 10 per cent.

The provincial health officer held that this attitude was far from ideal.

The question was referred to the

works committee, after the correspondence was read. The total number of notices served by the sanitary inspector was 715. The total number of inspections made by the officer was 2,567, who discovered 247 defects in plumbing.

CONTRACTS AWARDED

Montreal.—D. A. Bethune, Ltd., has contract for \$39,477 covering heating and ventilation of new Rosemount school.

F. C. PALMER RESIGNS

Oshawa.—No less than 135 applications have been received for the position of sanitary inspector for the town of Oshawa, but up to the present no selection has been made to fill the vacancy created by the resignation of F. C. Palmer. It has been announced that Mr. Palmer has agreed to continue to act until the end of the present month in order to allow the board to consider the applications and if possible to make a selection.



F. C. PALMER

Sanitary inspector of Oshawa, Ont., and President of the Association of Plumbing and Drainage Inspectors of Ontario, who has resigned his position in Oshawa. It is not known definitely yet what Mr. Palmer's future movements will be, but the fact that he accepted re-election as President of the Ontario Association would indicate that he is intending to continue in this line of work.

PERSONAL

Mr. Waldon, of Spencer Heater Co., Toronto, is absent from his office due to sickness.

NEW HEATING APPARATUS

Ottawa.—The question of new heating apparatus and better laundry accommodation for the Isolation Hospital was also discussed. Plumbing Inspector S. Daughtry is making a report on these matters, and no action will be taken until this is forthcoming.

APPOINTED WATERWORKS SUPERINTENDENT

Ronald Harrison, Kingston road, Birchcliff, was appointed from about 50 applicants to fill the position of waterworks superintendent for Scarborough at a salary of \$175 a month by the Utilities Commissioners.

Born in Toronto 26 years ago, he moved to Birchcliff with his parents at the age of 14. Later he attended high school and finally graduated at Toronto University, carrying high honors at the School of Science as a civil engineer.

OUTLOOK FOR PLUMBING APPRENTICES

London, Ont.—R. H. Avey, discussing the apprentice problem from the plumbers' standpoint, is rather pessimistic on the outlook in general. "There are no boys learning plumbing now," he said. "I have had quite a number of them, but they all wanted to know more than I did about the business. They were not content to learn slowly and thoroughly as I had to do. The ground work of the business did not appeal to them, and I find it more profitable to pay for a helper whenever I want one, than to have a boy with me all the time.

"What few boys are still coming into the business are coming here from the outside towns," he remarked, "and there are not many of these in any case. When I was a boy learning my trade I got \$2.50 per week, and there were five years of that, and the last two years as an improver."

Mr. Avey was inclined to think that in a few years there would be very few properly qualified plumbers in the city. "They are certainly not coming into the trade as boys now, so I don't see how there can be many thoroughly experienced plumbers in the years to come."

WILL BUILD CENTRAL HEATING PLANT

Woodstock, Ont.—F. E. Sharpe, superintendent of the Woodstock hospital, advises Sanitary Engineer that the heating boiler for the hospital is a John Inglis, Toronto, horizontal 54 inches by 12 ft., 64 tubes, low pressure 20 lbs., tested to 75 lbs., hand fed, water return by gravity type. The new wing is to have an individual two way pipe and a pump. It is the intention of the board to heat the new wing off the present equipment for a short time, as they require a new central heating plant which will be built as a separate unit at a later date.

TO IMPROVE BELLEVILLE WATERWORKS

Belleville, Ont.—The following communications regarding the proposed filtration scheme for the City are self explanatory:

To John W. S. McCullough, Esq., M. D., chief officer of Health, Toronto: Our Council have under consideration the matter of certain improvements to our water works system in the city.

At a public meeting the advisability and feasibility of the establishing of inter-filtration beds at Zwick's Island were discussed.

Before going any further into this question, His Worship, Mayor Bennett has requested that I get the opinion of your Board on such a scheme being undertaken. No doubt you have data at your office in connection with such matters and it has been estimated that your Board at one time gave their opinion as to the establishing of these beds in the above named island.

An early reply to the above will be greatly appreciated. Yours truly,

W. J. Holmes.

BUILDING IN FIRST QUARTER IN CANADA

The course of construction operations points to a period of expansion. For the first quarter of 1923, the value of construction contracts awarded throughout Canada was \$43,107,400, compared with \$32,575,900 in the same period, 1922.

In January, building contracts awarded totalled \$9,840,800, in February \$13,311,800, and in March \$19,954,800.

Business and industrial building in the first quarter of 1923 totalled \$25,545,500, compared with \$20,679,900 in the same period in 1922.

During March, 1923, construction contracts awarded in Canada totalled \$19,954,800, compared with \$13,465,500 in March, 1922, of which 30 per cent. was residential building, 37 per cent. business building, industrial building 19 per cent. and public works and utilities 12 per cent.

Ontario leads the provinces.

ONTARIO SOCIETY CONVENTION MAY 10 and 11

As we go to press word is received that the 12th annual convention of the Ontario Society Domestic Sanitary and Heating Engineers will be held in Toronto on Thursday and Friday, May 10 and 11. Sessions will be held in the Foresters' Building, College St., Toronto. Further details of program planned will be given in the May 1 issue of Sanitary Engineer.

Appointed Advertising Manager of "Sanitary Engineer"



FRED T. HOLLIDAY

Who, as mentioned in a recent issue, has been appointed Advertising Manager of Sanitary Engineer, Plumber and Steamfitter of Canada. Mr. Holliday has had considerable experience in the trade paper publishing field in Canada both in regard to editorial and advertising work and is already known to many in the plumbing and heating industry in Canada.

PLUMBING AND HEATING COURSES THIS SUMMER

COURSES to interest nearly anyone in need of technical training will be given this summer at Carnegie Institute of Technology, at Pittsburgh, according to a preliminary announcement. The Carnegie Summer School will open June 25th and continue for eight weeks until August 17th. Six weeks' courses will be conducted from July 2nd to August 10th. Dormitory accommodations will be available for out-of-town

students. Of special interest to readers of this paper are the courses to be given by the Department of Heating and Ventilation, in the College of Industries. Several courses of lectures and shop work are offered in plumbing, heating and ventilating, and oxy-acetylene and electric arc welding.

WESTERN ONTARIO NEWS

R. E. Young, R. R. 1, York, Ont., wants prices on heating equipment for new school that is to be erected.

James Holden, of Simcoe, Ont., is now occupying new and larger quarters on Peel St.

Sutter & Perdue of Clinton, Ont., have plumbing and heating contracts for the new Clinton Hospital.

James McMillan, Acton, Ont., is interested in prices of heating, plumbing and electrical work for new \$4,000 dwelling.

Prof. McLennan, Ontario Agricultural College, Guelph, wants prices on hot air heating, plumbing and electrical work for new \$8,000 bungalow.

Walter Lamb, Acton, Ont., is preparing plans for new dwelling to cost \$3800 and wants prices on heating, plumbing and electrical equipment.

S. S. Ross and W. Dellar, of Norwich, Ont., have formed a partnership and are taking over the Beckett Plumbing and Heating shop.

Frank Brown, Essex, Ont., is preparing plans for new \$3,500 residence and wants prices on heating, plumbing and electrical equipment.

S. Murch, 14 Charles St., Stratford, Ont., is preparing plans for new bungalow and wants prices on heating, plumbing and electrical equipment.

Ray Morningstar, Watford, Ont., is preparing plans for bungalow and is interested in prices of heating, plumbing and electrical equipment.

George Nelson, 637 Dundas St., London, Ont., wants prices on hot water heating, plumbing and electrical equipment for new \$10,000 dwelling.

Stephen Dunn, 25 Byron Ave., London, Ont., has been awarded the plumbing and heating contracts for new factory for London Shipping Containers.

G. W. Langford, 125 Mamalon St., London, Ont., wants prices on hot air heating, plumbing and electrical work for new \$5,000 residence.

Captain Fletcher, 982 Oxford St., London, Ont., wants prices on heating, plumbing and electrical equipment for new \$7,000 dwelling for which plans are being prepared.

Architect W. G. Murray, Dominion Savings Building, London, Ont., is preparing plans for a new \$25,000 Sunday school for the St. John's Anglican Church at Sarnia, Ont. Prices wanted on hot air heating, plumbing and electrical equipment.

Market Conditions and Tendencies

Price Trend on Sanitary and Heating Supplies

Markets at a Glance

CHANGES in price have occurred with some rapidity in plumbing and heating goods for the first three months of the year. Most of the changes have been in an upward direction, although reductions have been noticeable in quotations on a few lines, in almost every report. This week, however, every market change reported to Sanitary Engineer has been an advance.

Range boilers are now quoted on a net list a little over 5 per cent. higher than formerly. Range boiler stands are also quoted on a net list. Canadian pattern Stillson wrenches have reached higher

levels through a lowering of the discounts from 55 to 50 per cent. Stanley braces and mitre boxes have been moved up slightly by local jobbers, one cent per pound is the advance in quotations on soldering coppers, and iron rivets and burrs, discount is now 42½ per cent., replacing the former one of 47½ per cent.

Other markets are uniformly firm, reflecting the strong tendencies displayed at primary sources. Second quarter buying has appeared to assure a continuance of the firmness in all markets.

Montreal Markets

MONTREAL, April 13.—There have been few changes in the markets since last issue but it is of interest to note that what there have been have all followed the tendency of the times and have been in an upward direction. The discount on soil pipe has been reduced slightly, the cut being from 35 per cent to 33½ per cent. and there has been a slight advance in the price of copper and brass sheets, rods and tubing. Asbestos products have made their first price change in some months, there being a cut of 5 per cent. in the discount of magnesia blocks with a like advance probable in other asbestos products. There has been a price re-adjustment on some compression lines.

In the primary metal markets a continued strong tone has had its effect upon the sheet metal market and an advance over present prices is likely by the time this issue appears. Boiler tubes are also expected to advance slightly within the next week or so.

UPWARD REVISION IN DISCOUNT ON SOIL PIPE

Montreal.

This week has seen a slight upward change in the price of soil pipe. Discounts on pipe have been reduced on all sizes but the eight-inch which remains at net list. Other sizes which formerly had a 35 per cent. discount now have it at 33 1-3 per cent. There has been no change in the fittings prices. Current local quotations are as follows:

SOIL PIPE—	
2 and 3 inch	33 1-3%
4 inch	33 1-3%
5 and 6 inch	33 1-3%
8 inch	net
FITTINGS—	
2 to 6 inch	45%
8 inch	net

COMPRESSION QUOTATIONS HAVE BEEN REVISED

Montreal.

The past two weeks have seen price adjustments in a number of lines of compression goods, all in an upward direction by the cutting down of the discounts. In the majority of cases the change has been slight but in some instances has run as high as fifteen per

cent. The quotations given locally by the majority of the distributors are as follows:

VALVES AND BIBBS—

Compression work, standard	45%
Fuller work, standard	30%
Quick opening, compression bibbs	43%
Bath cocks, quick opening	38%
Bath cocks, compression	40%
Basin cocks, quick opening	46%
Flatway stop and waste cocks, standard	54%
Roundway stop and waste cocks, std.	42%
Brass steam cocks, standard, ¼ in.	50%
Radiator valves, standard	55/25%
Do., removable discs	55/25%
Globe, angle and check valves, std.	25%
Gate or straightway	25%
Emco globe valves	33%
Emco check valves	33%
Jenkins globe, angle, check and swing check	net
Jenkins gate or straightway	7½%
Jenkins iron body, globe and angle	net
Jenkins iron body, gate	20%
N. P. "O" and "S" traps	34%

ADVANCED PRICES ARE EXPECTED ON SHEET METALS

Montreal.

The sheet metal market has again assumed a very strong tone and although local distributors have endeavored to hold firm at prevailing prices there is a strong likelihood that higher levels will come into effect before the close of

the present week. Trading is fairly firm although the unsettled state of the market is causing consumers to place only orders that are absolutely necessary. There is a sizeable variation in local quotations which is covered in the following list:

GALVANIZED SHEETS—

	Queen's Head	Fleur de Lis
18—20 gauge	6 65	6 90
26 gauge	7 25	7 50
24 gauge	6 95	7 20
22 gauge	6 90	7 15
28 gauge	7 50	7 75

Other Brands—

10½ oz.	7 25	7 50
28 U. S. base	7 00	7 25
26 U. S. base	6 60	6 85
24—22 gauge	6 35	6 60
20—18 gauge	6 15	6 25
16 gauge	6 00	6 10

Above prices are for ½ ton lots in English iron and 1000 lb. lots in American iron with an extra charge of 25c. for less quantities. Extra for sheets 3 ft. wide, 28 gauge and 10½ oz., 25c. per 100 lbs.

Further extra for sheets 4 ft. wide according to gauge.

TIN PLATE—

20 x 28 x 100 lbs. basis	15 50
20 x 28 IC, 112s	16 00
20 x 28 IX, 112s	13 00
20 x 28 IXX, 56s	11 00
20 x 28 IXXX, 56s	12 00

TERNE PLATE—

20 x 28 IC, 112s, 200 lb.	14 50
20 x 28 IC, 112s, 214 lb.	15 00

CANADA PLATE—

Half bright 52s	5 50
Half bright 60s	5 60
Blued 52s	5 90
Blued 60s	6 00
Welsh, polished, 60s	7 35
Welsh, polished, 52s	7 10
Galvanized, 52s	8 00
Galvanized 60s	8 50

METAL LATH QUOTATIONS ARE WITHOUT CHANGE

Montreal.

There have been no recent changes in the price of metal lath at this point. Trading is reported to be fairly good, but like the building lines in general in this district will not reach its best until the opening of navigation. The quotations now in force locally are as follows:

METAL LATH—	per sq. yd.
Painted—	
26 gauge	23c.
24 gauge	25c.
32 gauge	32c.
Galvanized. 10c. per sq. yd. extra.	

VERY FIRM TONE TO MARKET IN BOILER TUBES

Montreal.

There is a decidedly firm tone to the market in boiler tubes and a slight change in price in an upward direction would not come as a surprise, although distributors are making a strong attempt to maintain present levels. Trading is firm at the following quotations which have been in force locally for some weeks:

BOILER TUBES—

	Seamless Lapweld
1 inch	20 00
1¼ inch	22 00
1½ inch	21 00
1¾ inch	24 50 24 00
2 inch	21 50 20 00
2¼ inch	24 50 23 00
2½ inch	29 00 24 50
3 inch	34 00 31 00
3½ inch	39 50 35 50
4 inch	50 00 45 00

Prices, per 100 ft., f.o.b. Montreal.

CORRUGATED SHEETS HOLD FIRM AT FORMER LEVELS

Montreal.

The corrugated sheet market remains firm locally, trading being fairly brisk with prospects for a steady improvement in the near future. Quotations remain at levels established some weeks ago when these products underwent a general advance. The prices in force at the present time are as follows:

CORRUGATED SHEETS—	Per 100 sq. ft.
No. 28 gauge	7 00
No. 26 gauge	7 50
No. 24 gauge	10 00
No. 22 gauge	12 50
No. 20 gauge	14 00
No. 18 gauge	19 00
Less 10 per cent.	
Lighter than 24 gauge and wider than 27 ins.,	
75 cents per square extra.	

NEW HIGHER QUOTATIONS FOR ASBESTOS PRODUCTS

Montreal.

The first price change in asbestos goods to be noted in several months was announced this week when a cut of five per cent. was made in the discount on the magnesia block, bringing the local quotations to thirty-five per cent. off list. It is also stated that advices from primary sources would indicate that a price revision of a similar proportion will be necessary on other lines in the very near future. Trading is reported as fair with the season much later than other years. The local quotations are as follows:

ASBESTOS PRODUCTS—	Off list prices
2 ply pipe covering	57½%
3 ply pipe covering	55%
4 ply pipe covering	50%
85 per cent. magnesia	35%
Boiler covering	Per 100 lbs. \$1 50
Asbestos sheathing	Per 100 lbs.

EAVES AND CONDUCTOR PIPE TRADING IS GOOD

Montreal.

There have been no recent price changes in the local quotations on eaves, conductor pipe and elbows. Trading is reported to be fairly good and on the up-grade, prospects being for an unusually good season in this district, owing to the large amount of building

planned for this summer. The local quotations are as follows:

EAVESTROUGH—

O. G. round and half round, per 100 ft. 3 in., \$16.90; 10 in., \$18.70; 12 in., \$22.20; 15 in., \$35.50; 18 in., \$45.00.

O. G. Square bead, per 100 ft.; 8 in., \$15.90; 10 in., \$17.70; 12 in., \$21.20; 15 in., \$34.50; 18 in., \$44.00.

Discount 65 and 5 per cent.

CONDUCTOR PIPE—Round, Plain and Corrugated, per 100 ft.; 2 in., \$18.40; 3 in., \$22.30; 4 in., \$29.60; 5 in., \$48.00; 6 in., \$58.80.

Discount 65 and 5 per cent.

CONDUCTOR ELBOWS—

Plain or corrugated, price per doz 2 in., \$5.25; 3 in., \$6.00; 4 in., \$10.50; 5 in., \$24.00; 6 in., \$29.00.

Discount 55 and 5 per cent.

IRON AND STEEL PRICES FIRM AT RECENT REVISION

Montreal.

Trading in bar products continues firm in the local market. There are no signs of any immediate change in prices from those adopted some weeks ago. Quotations on the local market are as follows:

IRON AND STEEL—

Common bar iron, 100 lbs.....	3 65
Refined iron	5 15
Irish finish machinery steel	3 70
Mild steel	3 65
Single reled machinery steel 5 00	5 25
Band steel	4 15
Sleighshoe steel	3 65
Spring steel	6 00 8 50
Tire steel	3 85
Harrow tooth steel	3 80
Toe caulk steel	4 55
Mining tool steel, per lb.	0 19
Black Diamond tool and cast steel,	
per lb.	0 19

NOTE.—Refined iron is approximately \$1.50 per cwt. over base, but fluctuates owing to unsettled market.

Band steel in scroll bundles, 50c per 100 lbs. extra.

Iron and steel 3-16 in. and thinner, 50c per 100 lbs. extra.

FIRM MARKET IS FEATURE OF SCRAP METALS

Montreal.

A firm market with trading well on the increase features the scrap metal market this week. Prices are firm at the levels which have been in force for several weeks now although there is a tendency towards some slight moves upward shortly. Quotations which may be taken as a fair average locally are as follows:

SCRAP MATERIALS—

Automobile tires	0 50
Rubber shoes	0 03
Yellow brass	0 05½ to 0 06
Red brass	0 09
Light brass	0 04½
Scrap zinc	0 04¾
Lead, heavy	0 05
Lead, tea	0 03
Light copper	0 08½ to 0 09
Heavy copper	0 11¼
Wrought iron, R. Rd., No. 1, per gr. ton ..	12 00
Malleable scrap (ton)	9 00 to 10 00
Pipe scrap (ton)	7 90
Heavy melting steel	9 00 9 50
No. 2 busheling	3 00
Boiler plate	3 00 to 9 00
No. 1 machinery cast	20 00 to 22 00

TRADING REPORTED STRONG IN CEMENT MARKETS

Montreal.

Cement prices have shown no variation locally for some time. Spring trading is reported strong. Local quotations are as follows:

CEMENT—

Car load lots, per bag, F.o.b. steam cars ..	0 86
Per Bag, delivered	0 94
Less car lots, per bag, F.o.b. yard.....	0 94
Per bag, delivered	1 04
Less 5 per cent	1 04
Rebate of 20 cents for empty bags.	

TRADING GOOD WITH PRICES UNCHANGED IN COTTON WASTES

Montreal.

Cotton wastes have shown no tendency towards a further price change since the general advance of the cotton products market a few weeks ago. Trading is fairly good locally, with a big improvement anticipated upon the opening of navigation. The local quotations are as follows:

COTTON WASTES—	Per lb.
Cream polishing	0 24
White, XXX extra	0 20
White, XX grand	0 18½
White, XLGR	0 17
X Empire	0 15½
X Press	0 14
Colored—	
Fancy	0 15½
Lion	0 14
Standard	0 12½
Popular	0 10½
Keen	0 08½
Wool Packing—	
Arrow	0 25
Axle	0 21
Anvil	0 17

Dominion Wpers—

White cotton	0 20
Colored cotton	0 13½

COPPER AND BRASS SHEETS AT HIGHER LEVELS

Montreal.

Recent advances in the primary markets have had their effect upon brass and copper products, sheets, rods and tubing having made an advance recently, the new base prices being quoted locally at present as follows:

BRASS—	Base
Sheets, base	0 27
Rods, base, ½ to 1 in., round.....	0 24
Tubing, seamless, base.....	0 32
F.o.b.	
COPPER—	
Rods, ½ to 2 in.	0 30
Soft sheets, plain, 16 oz. and heavier..	0 33
Plain tinned, 16 oz. and heavier.....	0 40
Polished, and tinned, 16 oz. and heavier, lb.	0 44
Tubing, lb.	0 34
Above prices are full sheets and bars. Cut sheets and bars are 5c. per lb. higher.	

LEAD AND ZINC PRODUCTS ARE FIRM LOCALLY

Montreal.

The recent price increase in zinc sheets has been maintained during the past two weeks without further change, nor has there been any other price change in the list of lead and zinc products, the prices in force being as follows:

LEAD AND ZINC PRODUCTS—

Lead pipe, per 100 lbs., up to 2".....	14 50
Do., 2" to 8".....	15 50
Do., 8" and over	16 50
Lead waste, per 100 lbs.	15 50
Note—Lead pipe is subject to a discount of 10%.	
Lead traps and bends	15%
Lead wool, lb.	0 14½
Lead sheets, 2½ lbs., sq. ft. lb.....	0 12
Lead sheets, 3 to 3½ lbs., sq. ft. lb.....	0 11¼
Do., 4 to 8 lbs., sq. ft. lb.....	0 11
to size, ¾ c. lb. extra.	
Solder, guaranteed, lb.	0 34
Do., strictly, lb.	0 31
Cut sheets, ¼ c. lb. extra and cut sheets	
Do., commercial	0 30
Do., wiping, lb.	0 30
Do., wire, lb.	0 44½
Zinc, sheets, casks	0 11
Do., broken lots	0 12

TRADING IS REPORTED LIGHT IN RADIATION GOODS

Montreal.

Since the upward revision late in March there has been little activity in radiation goods. Trading is light and

prices remain unchanged locally at the following quotations:

RADIATORS AND BOILERS—

Radiator list prices are for 1, 2, 3, 4 and 5 column radiators, per sq. ft.
45 in. to 38 in., \$1; 32 in., \$1.10; 30 in., \$1.15; 26 in., \$1.20; 23 in., \$1.26; 22 in., \$1.30; 20 in., \$1.36; 18 in., \$1.40; 16 in., \$1.50; 14 in., \$1.55; 13 in., \$1.60. Discount 44 per cent for hot water, and 45 per cent. for steam.

Wall radiators—5 ft., \$1.15; 6 ft., \$1.10; 7 ft., \$1.05; 9 ft., \$1.05; 12 ft., \$1.05; Discount 41 per cent.

Boilers—Round water boilers, sizes from 0 to 10, 52 per cent. off list. Square or sectional hot water or steam boilers, 15 in., 3 per cent. with Ontario Government trimmings, list. Square or sectional water boilers, 19 in. to 36 in., 8 per cent. Square or sectional steam boilers, 19 in. to 26 in., 5 per cent. Ontario Government trimmings, list plus 7 per cent. Square or sectional water or steam boilers, 48 in., list plus 10 per cent. With Ontario Government trimmings, list plus 18 per cent.

Round steam boilers, standard trimmings, 16 per cent. Ontario Government trimmings, 13 per cent.

F.o.b. Montreal, Toronto, Guelph.

FITTINGS MARKET UNCHANGED; TRADING IMPROVES

Montreal.

Recent revisions in fittings have been maintained without further price changes during the past week. Trading, while good, has not opened up to any degree as yet and will improve steadily as the season progresses. Discounts being quoted locally are as follows:

PIPE FITTINGS—

Cast iron fittings	17½%
Plugs, cast iron	17½%
Do., solid	17½%
Do., countersunk	17½%
Bushings, cast	20%
Do., malleable	20%
Unions	35%
Flanged unions	17½%
Flanged fittings	27½%
Dart unions, black, ½ to 2 in.	33½%
Do., ½ in., 2½ in., and larger	23%
Do., galv. add to black	30%
Nipples, ½ to 4", close and short	50%
Do., long	55%
Do., 4½ to 8", close and short	40%
Do., long	45%
Couplings, 4" and under	25%
Do., 4½" and larger	5%

Malleable Fittings—

Piece list effective June 1st, 1922. Discount 65 per cent.

QUOTATIONS ARE UNCHANGED ON ENAMELLED WARES

Montreal.

Prices on enamelled wares remain firm at recently quoted levels. Trading has not opened up to the full extent for the season yet but is reported good for this time of the year. The following are the prices in effect locally:

ENAMELED WARE—

Sinks, roll rim—	
18 x 30	\$23 00
Sinks, flat rim—	
16 x 24	\$7 50
18 x 30	\$7 40
20 x 30	\$8 50
Bath tubs, roll rim, 4, 4½, 5 feet, 24 to 30 in. wide	\$9 00
Bath tubs, 5½ feet	\$9 80
Lavatories—	
17x19 in. Apron F139 or P4045	\$13 30
18x24 in. Apron F154 or P3845	\$23 60
18x21 in. Apron F169 or P4205	\$17 60
17x19 in. Roll rim. F241 or P4345	\$12 60
Less 30 per cent.	

NO FURTHER CHANGE IN CLOSET COMBINATIONS

Montreal.

Closet combinations remain at the revision of April 1st no further change

having been announced this week. Today's quotations on the local market are as follows:

CLOSET COMBINATIONS—

Low Down Outfits,	each
Closet, standard outfit, oak	24 00
Do., post hinge seat	25 00
Do., oak vitro or Pussyfoot	24 50
Do., post hinge seat	25 50
Do., mahogany vitro or Pussyfoot, post hinge seat and cover	28 00
Do., vitreous china, oak post hinge seat and cover	29 00
Do., vitreous china, mahogany post hinge seat and cover	30 00
Do., white vitro or Pussyfoot, mahogany post hinge seat and cover	30 00
Do., enamelled iron tank, oak post hinge seat and cover	29 50
Do., enamelled iron tank, mahogany post hinge seat and cover	29 50
Add for ¾" valve on supply pipe	1 25
Add for spud	0 60
Add for reverse trap bowl	1 50
Add for syphon jet bowl	7 00
Deduct for supply pipe	0 80
Deduct for floor hinge	0 60

CLOSET BOWLS—

Richefeu bowl	\$ 00
Washdown bowl with spud	9 50
Reverse trap bowl with spud	9 50
Syphon jet bowl with spud	15 00

CLOSET SEATS—

Oak post hinge seat and cover	3 85
Oak wood strip seat and cover	3 50
Mahogany finish post hinge seat and cover	4 05

CLOSET TANKS—

Low down, oak vitro or Pussyfoot with fittings less seat	13 20
White vitro or Pussyfoot with fittings, flush elbow and supply	15 65
Vitreous china tank with fittings, flush elbow and supply	18 00
Enamelled iron with fittings, flush elbow and supply	18 00

PRICES SOMEWHAT UNSETTLED IN INGOT METAL MARKET

Montreal.

The metal market has been somewhat irregular during this week with sudden declines in some lines and prices being more or less unsettled. This is not surprising and the reaction at this stage is welcome as any attempt to push prices higher up would only result in trouble later on.

TIN.—This metal has been marking time this week with the fluctuation very slight. Buyers in the U. S. A. are pretty well covered over the next few

months and until they come into the market again there is not likely to be any pronounced movement. At the same time the situation is firm and there is no indication of lower prices. The local market is quiet at 53 cents per pound.

COPPER.—This has developed an easier tone both in New York and London and there is a disposition to shade published prices. There are sellers over the next few months of electro at below seventeen cents refinery and until the export situation improves there is not much likelihood of an advance. Buyers in the U. S. A. are well covered and there is no demand at the moment for spot copper. The local market is quiet at 20 cents for casting and 20½ cents for electro.

LEAD.—There are no special features in this metal but prices are slightly easier. Spanish lead is being offered in New York and despite the heavy consumption in the U. S. A. it is probable that prices will go gradually lower, although there is no evidence of weakness. The local market is slightly easier at 8½ cents a pound.

SPELTER.—This metal had a sharp decline this week both in London and East St. Louis but a recovery promptly took place and the market is now firm. It is only natural that present prices should mean increased production and it would not be surprising to see a further decline in the near future. The local market is quiet at 10½ cents per pound.

ANTIMONY.—This metal is dull with prices unchanged and there is little enquiry at the moment. The local market prices are 8¾ cents for high-grade English and 8¼ cents for Chinese.

ALUMINUM.—There are no new features in this metal and the market is quiet but firm at 25 cents per pound

Toronto Markets

TORONTO, April 13th.—As indicated in a recent issue of Sanitary Engineer, there have been some changes in price on lines affecting the plumbing and heating trade. Among the important changes noted is the advance in price on range boilers and stands. The price now in effect on boilers has taken the form of a net list instead of a list price with a discount. The new prices on stands are also shown on the basis of a net list. Changes have been made in discounts on other lines, including Canadian pattern Stillson wrenches, iron rivets and burrs, Stanley braces and mitre boxes and soldering coppers. Most of the advances are small, being generally around 5 per cent. but they have affected some lines which contain a large number of sizes and have therefore covered a considerable area.

SOME STANLEY TOOLS REPORTED HIGHER

Toronto.

Local jobbers are quoting higher prices on some lines of Stanley tools. The advance is about 5 per cent. and the items affected are braces and mitre boxes.

IRON RIVETS AND BURRS FIGURE IN ADVANCE

Toronto.

A revision has taken place in discounts on iron rivets and burrs. The new discount being 42½ per cent., the former one being 47½ per cent.

STILLSON WRENCHES DISCOUNTS REDUCED

Toronto.

New discounts are in effect on Canadian pattern Stillson wrenches. The new discount is 50 per cent. off, instead of 55 per cent. as formerly. The list and discounts being quoted on the different sizes and qualities are shown below.

STILLSON WRENCHES— Each
6 inch \$2.00; 8 inch \$2.25; 10 inch \$2.50; 14 in. \$3.50; 18 inch \$5.00; 24 inch \$7.25; 36 in. \$13.50; Canadian pattern 50 per cent. off. Genuine, 45 per cent. off.

RANGE BOILERS TAKE HIGHER PRICE LEVELS

Toronto.

As predicted in a recent issue of Sanitary Engineer, some changes have taken place in quotations on various lines of plumbing goods. Among the more important is the new net prices which are in effect on range boilers. The new list is not as high as was anticipated, the advance being well under 10 per cent. Quotations locally are now as follows:

RANGE BOILERS—	St'nd'r'd	Ex. He'vy
5 gallon	8 77	.....
10 to 15 gallon	9 10	.....
18 gallon	9 75	.....
25 gallon	10 70	.....
30 gallon	11 35	13 13
35 gallon	13 30	15 38
40 gallon	14 80	17 06
52 gallon	24 70	28 50
66 gallon	39 50	45 56
82 gallon	48 10	55 50
100 gallon	66 95	77 25
120 gallon	76 05	87 75
144 gallon	122 50	.....
166 gallon	140 25	.....
192 gallon	157 50	.....
EXTRAS—	Add	
For horizontal tapping	1 15	
1" Special for gas heater	1 00	
Each extra 2" tapping	1 75	
Each extra 3" tapping	3 00	

NEW PRICES ON RANGE BOILER STANDS

Toronto.

New net lists are in effect on range boiler stands. The new prices given below are those in effect on the local market and are slightly higher than former quotations.

BOILER STANDS—

Each—5 gal. \$1.50; 12 gal. \$1.50; 18 gal. \$1.50; 25 gal. \$1.50; 30 gal. \$1.50; 35 gal. \$1.65; 40 gal. \$1.90; 52 gal. \$2.10; 66 gal. \$2.35; 82 gal. \$2.50; 100 gal. \$3.80; 120 gal. \$4.00; 144 gal. \$4.00; 166 gal. \$4.00; 192 gal. \$4.00; Adjustable Stands 12 to 14 inch 60c.

IRON AND STEEL PRICES SHOW NO CHANGES

Toronto.

No changes have occurred in quotations on iron and steel during the week's trading. Primary market reports indicate that this market will remain strong for some time, although the heavy buying, which has characterized these lines in recent months, has subsided to some extent. Average quotations locally are as follows:

IRON AND STEEL—

Mild steel bars and small shapes	\$3 60	\$3 75
Mild steel bands, 3-16 in. base	4 00	4 25
Bar iron, base	3 75	
Horse shoe steel	4 25	
Tire steel	3 60	3 95
Spring Steel	10 50	
Sleigh shoe steel	3 50	3 75
Cold drawn steel	4 60	4 75
Hoop steel, heavier than 1"x20G	4 75	5 00
Do., Lighter than 1"x20G	5 35	5 75
Norway iron	12 50	
Truc caulk iron	4 20	
Croable cast sheet steel	28 00	
Mining drill steel	18 50	
Cast tool steel, high grade	30 00	

SOIL PIPE PRICES REMAIN UNCHANGED

Toronto.

Reports from primary sources have been showing a tendency toward higher price levels in the soil pipe market. Some reports were to the effect that new lists were about to be issued this week, but no confirmation of this has been obtained from local jobbers. The following discounts are being quoted to the trade:

SOIL PIPE AND FITTINGS—		
2 inch	Less 33	1-3%
3 inch	Less 33	1-3%
4 inch	Less 32	1-3%
5 and 6 inch	Less 33	1-3%
8 inch		net
FITTINGS—		
8 inch fittings		net.
2 to 6 inch	Less 45	per cent.

CLOSET COMBINATIONS HOLDING FIRM IN PRICE

Toronto.

There is no change noted in quotations on closet combinations from the prices which have been in effect for some time. Market reports continue to show considerable strength but there has been no move toward price adjustments locally.

CLOSET COMBINATIONS—	Each
Oak, Wood Tank, Oak W. S. Seat and Cover	24 00
Oak Vitro Tank, Oak W.S. Seat and Cover	24 00
Oak Pussyfoot Tank, Oak W.S. Seat and Cover	24 00
Oak Wood Tank Oak P.H., Seat and Cover	24 50
Oak Vitro Tank, Oak P.H. Seat and Cover	24 50
White Vitro Oak Woodstrip Seat and Cover	24 50
White, Pussyfoot Oak Woodstrip, Seat and Cover	25 50
White Pussyfoot, Woodstrip Seat and Cover	25 50
White Vitro Tank, Mahog., P.H. Seat and Cover	26 50
White Pussyfoot, Mahog., P.H. Seat and Cover	26 50
White Vitro or Pussyfoot, oak, P.H. Seat and Cover	26 00
Mahog. Pussyfoot, Mahogany P.H., Seat and Cover	27 00
Vitreous China Tank, Oak P.H., Seat and Cover	27 00
Enam. Iron Tank, Oak P.H. Seat and Cover	28 75
Vitreous China Tank, Mahog., P.H. Seat and Cover	29 00
Enam. Iron Tank, Mahog., P.H., Seat and Cover	28 75
ADDITIONS OR REDUCTIONS ON ABOVE—	
If supplied less bend or offset, deduct.	0 50
If supplied with reverse trap bowl, add	1 50
If supplied with BOT Reverse Trap bowl	
Add	2 25
If supplied with plain syphon jet bowl	
Add	7 00
If supplied with N.P. stock cock on supply Pipe, Add	1 50
If supplied less brass and rubber floor flange and bolts, Deduct	0 60
If supplied less bend or offset, deduct.	0 50
If supplied less N. P. supply pipe deduct	0 70

CLOSET BOWLS—

Washdown bowl with spud	10 60
Reverse trap bowl, with spud	12 10
Syphon jet bowl, with spud	17 00
"Richelieu" bowl	10 50

CLOSET TANKS—LOW DOWN—

Oak wood, Tank and inside fittings with bend and supply	13 20
Mahog. Wood Tank, and inside fittings with bend and supply	15 40
Oak Vitro or Pussyfoot Tank and inside fittings with bend and supply	13 45
White Vitro or Pussyfoot Tank and Inside fittings with bend and supply	13 40
White Enam. Tank F-385 or P.9262, or White Vitreous China Belmeade Tank with fittings (as above)	18 00

CLOSET SEATS—

Oak Rich. Seat and Cover to wall	3 50
Oak Woodstrip Seat and Cover with bolts	3 50
Oak Woodstrip Seat less Cover with bolts	2 90
Oak Post Hinge Seat and Cover	3 85
Mahog. Fin. Post Hinge Seat and Cover	4 75

SOLDERING COPPERS REPORTED SLIGHTLY HIGHER

Toronto.

Some local jobbers have again advanced quotations on soldering coppers. The new prices being 1c. per lb. higher than former levels.

PLUMBERS' BRASS GOODS PRICES AT RECENT REVISION

Toronto.

The figures quoted in our last issue on plumbers' brass goods have remained unchanged. Reports show a lively trade in practically all lines of plumbing goods and indications are that 1923 will be exceptionally good in these lines. Quotations on the principal items are as follows:

BRASS GOODS—

No. 3825 Compression, complete with tails	3 75
No. 4 Std. Comp. Double Bath. No. 3829 F	4 46
Ditto with China Index, No. 3830F	4 92

Quick Opening—

Brass handle on top, No. 3850 F	4 90
China handle on top, No. 3850 F	5 52
Brass handle on side, No. 3851F	4 95

(less Jewell's cup)

China handle on side No. 3852 F	5 45
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(less Jewell's cup)

No. 4 1/2 Fuller, brass handle, No. 3862	6 48
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A2395 Mueller type Shower Faucet	9 25
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3/4 in. N. P. Brass Supply Pipes	2 20
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1/2 in. N. P. Brass Supply Pipes	2 30
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1/2 in. Galvanized Iron Nickle Plated Supply Pipes	1 75
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1/4 or 1 1/2 Overflow and Waste, 19 gauge, N. P. on rough	3 20
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1 1/2 T.B.L. Overflow and Waste, 19 gauge, N. P. on the rough	4 15
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LAVATORY FITTINGS—

Riley Basin Cocks China Index, per pair	7 00
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Riley Jr. Basin Cocks, China Index, per pair	6 00
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Adanac Basin Cocks, Brass Handle, No. 3632, per pair	4 68
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Adanac Basin Cocks, China Handle, No. 3635, per pair	5 20
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Quick Opening Basin Cocks, Brass Hdle. No. 3630, per pair	3 70
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Quick Opening Basin Cocks, China Handle, No. 3633, per pair	4 28
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Fuller No. 0 Basin Cocks, Brass Handle, No. 3650, per pair	4 10
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Fuller No. 0 Basin Cocks, China Handle No. 3651, per pair	5 04
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Midget No. 0 Basin Cocks, No. Index, No. 3623 per pair	3 14
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Midget No. 0 Basin Cocks, With Index, No. 3623, per pair	3 45
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3/8 in. N.P. Brass supplies to wall or floor	2 20
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3/8 in. Galv. supplies N. P.	1 50
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1 1/4 in. N.P.S. Traps to floor No Vent 20G No. 4458	3 46
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1 1/4 in. N.P.S. Traps to floor with Vent 20G No. 4462	4 53
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1 1/4 in. N.P.P. Traps, No Vent 20G No. 4450	2 74
--	------

1 1/4 in. N.P.P. Traps No Vent Toronto By-law No. 4450	2 97
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1 1/4 in. N.P.S. Traps with Vent Toronto By-law No. 4462	4 98
--	------

1 1/2 in. N.P.S. Traps with Vent Toronto By-law No. 4462	6 67
--	------

2 in. N.P.S. Traps with Vent Toronto By-law No. 4462	14 00
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Patent Overflow basin plugs	0 71
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Pop up waste	5 00
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Unique waste China Knob	5 50
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Unique waste China Index	5 00
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1 1/4 in. Deep Seal Trap No Vent	3 75
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1 1/2 in. Deep Seal Trap No Vent	6 00
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1 1/2 in. Elliptic Trap	6 50
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1 1/2 in. Elliptic Trap	9 00
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Whirlpool N.P. Traps list prices less	15%
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1/2 in. Lever Handle, Stop and Waste solid key, No. 3969	0 83
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1/2 in. Lever Handle, Stop and Waste, pin cheek, lose key, No. 4032	1 04
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1/2 in. Lever Handle, Stop and Waste, pat. cap. loose key, No. 4044	1 21
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1/2 in. Boiler Drain Cocks 3571	0 80
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CEMENT MARKET REPORTED DULL

Toronto.

Reports show little activity noted in the sales of portland cement. No change in price has occurred for some time, this market being uneventful, with quotations as shown below:

CEMENT—

Carload lots, per barrel	3 45
Less carload lots, per barrel, f.o.b. yard	4 35
Per barrel, delivered	4 55
Single bags, \$1.15 each; 4 bags to barrel. Extra charge of \$1.50 per load on less than 24 bag lots.	
Rebate of 20 cents each for empty bags.	

ASBESTOS PRODUCTS SHOW SIGNS OF AN ADVANCE

Toronto.

Asbestos goods are practically unchanged on the local market, but the continued strength of the raw material is having a tendency toward higher quotations in other centres. Local distributors have made no move in this direction but higher quotations on some lines would cause no surprise. Following are current prices on the usual lines of pipe covering and sleathing:

ASBESTOS PRODUCTS—

Pipe Covering—	
Air cell, 4 ply	50 per cent. off list.
Air cell, 3 ply	55 per cent. off list.
Air cell, 2 ply	57½ per cent. off list.
Boiler Covering	\$1.50 — \$2.00 per bag.
Asbestos Sheathing	\$8.25 \$9.00
Magnesia pipe covering	less 40 per cent.
Magnesia pipe covering, small lots, less	35 per cent.

VALVES AND BIBBS MAINTAIN STEADY LEVEL

Toronto.

No changes have occurred in quotations on valves and bibbs recently on the local market. The following prices have been generally uniform in quotations by local distributors:

VALVES AND BIBBS—

Compression work, standard	45%
Fuller work, standard	30%
Quick opening compression bibbs	45%
Batt. cocks, compression	41%
Jenkins iron body, gate	25%
Bath cocks, quick opening	41%
Basin cocks, quick opening	46%
Flatway stop and waste cocks, std.	54%
Roundway stop and waste cocks, standard	54%
Brass steam cocks, standard	50%
Radiator valves, standard	55/25%
Do., removable discs	55/25%
Globe, a angle and check valves, standard.	25%
Gate or straightway	25%
Emco Globe valves	33%
Emco check valves	33%

SLIGHT CHANGE IN LEAD AND ZINC PRICES

Toronto.

Lead and zinc products have remained stationary in price since the report of April 1st, with the exception of a slight variation in quotations on zinc sheets. The following prices are being quoted on the local market:

LEAD AND ZINC GOODS—

Lead pipe, per 100 lbs., up to 2"	14 50
Do., 2" to 8"	15 50
Do., 8" and over	16 50
Lead waste, per 100 lbs.	15 50

Note—Lead pipe is subject to a discount of 10 per cent.

Lead traps and bends	15%
Lead wool, lb.	0 14½
Lead sheets, 2½ lbs. sq. ft. per lb.	0 12½
Lead sheets, 3 to 3½ lbs.	0 11¾
Do., 4 to 8 lbs., sq. ft. lb.	0 11½
Solder, guaranteed, lb.	0 33½
Do., strictly, lb.	0 31½
Do., commercial,	0 29
Do., wiping,	0 31
Do., wire,	0 37
Zinc sheets, casks, lb.	0 11¾
Do., do., less, lb.	0 12¼

CANADA PLATES AND TIN PLATES FIRM

Toronto.

Following the recent revision in the price of all plates, Canada plates and tin plates have been steadily maintained on the local market. In these products there is noted a slight range in prices, which is said to be due more to a variation in qualities than to a weakness in

the market. Prices given below are those generally in effect in Toronto:

PLATES, CANADA—		Per box
Ordinary, 52 sheets	5 45	5 50
Do., 60 sheets	5 50	5 60
Blue and oiled, boxes 52's.	5 80	5 90
Do., boxes, 60's	5 90	6 00
WELSH CANADA PLATES—		
Cold polished, 18 x 24 60's.	7 35	
Cold polished, 18 x 24 52's.	7 10	
PLATES, COKE TIN—		
IC, 20 x 28, 112 sheets	13 75	16 00
IX, 20 x 28, 112 sheets	16 25	18 00
IXX, 20 x 28, 56 sheets	9 80	11 00
PLATES, CHARCOAL TIN—		
IX, 20 x 28, 56 sheets	8 00	9 00
IXX, 20 x 28, 56 sheets	9 90	10 50
PLATES, TERNE—		
IC, 14 x 20, 112 sheets	14 50	15 00

STEADY TONE IN PIPE FITTINGS MARKET

Toronto.

There is a steady tone noted in the pipe fittings market following the recent rapid changes. Prices are well maintained and trading is showing improvement. Average quotations follow:

PIPE FITTINGS—

Cast iron fittings, standard	17½%
Do., do., extra heavy	25%
Plugs, cast iron	17½%
Do., solid	17½%
Do., countersunk	17½%
Bushings, mail	20%
Bushings, cast	22½%
Unions, ¼ in. to 2 in.	35%
Unions, ¼ in., 2½ to 4 in.	35%
Flanged unions	17½%
Flanged fittings	27½%
Do., ½ in. to 2½ in. and larger.	23%
Do., galv., add to black	30%
Nipples, blk. and galvd. ¼ to 4 in., close and short	50%
Do., 4½ in. and larger	40%
Do., long ½ in. to 4 in.	55%
Do., 4½ in. and larger	45%
Do., running thread	30%
Couplings, 4 in. and under	25%
Do., 4½ in. and larger	5%

MALLEABLE FITTINGS—

New piece list, adopted June 1, 1922.		
1 in. elbow	0 32	0 53
2 in. elbow	1 05	1 70
1 in. tee	0 43	0 70
3 in. tee	1 45	2 40
1 in. coupling R. & L.	0 33	0 59
1 in. locknut, R. & L.	0 15	0 23
Discount, Less 65 per cent.		

COTTON WASTE PRICES FIRM AND UNCHANGED

Toronto.

Quotations on cotton waste have remained firm since the recent revision but no further change is reported for the present. Basic cotton markets continue to hold the firm note with no reaction having been experienced from the high levels reached recently. Quotations locally are fairly uniform at the following list:

COTTON WASTES—

COTTON WASTES—	
Cream, polishing	0 24
White, XXX	0 21
XX	0 18
X	0 17
XC	0 15½
XXX extra	0 20
X. grand	0 18½
XLCR	0 17
X. Empire	0 15½
X. press	0 14
Colored, No. 1	0 14½
No. 17	0 14½
No. 1A	0 13½
No. 1B	0 11½
Fancy	0 15½
Lion	0 14
Standard	0 12½
Popular	0 10½
Keen	0 08½
Above lines subject to trade discount for quantity.	

SHEETS AND PLATES ARE FIRM IN PRICE

Toronto.

Following the recent advances which have occurred in quotations on almost the full line of sheets and plates, no further adjustments have been announced. Reports continue to stress the firmness at primary sources, however, and higher values are still among the possibilities. Heavy buying by automobile manufacturers is a feature of recent reports, this having a tendency to add strength to an already strong market. Quotations locally show a variation in most lines. Average quotations are as follows:

GALVANIZED SHEETS—

	Premier	Apollo
10¾ oz.	6 90	7 40
U. S. 28 base	6 50	6 90
U. S. 26 base	6 30	6 60
22 and 24	6 05	6 45
18 and 20	6 05	6 30
16	5 90	6 15
12 and 14	5 75	6 00

	Queen's Head
28 gauge, base	7 25
26	6 85
24	6 55
22	6 40

	Fleur de Lis
28 gauge base	7 25
26	6 85
24	6 55
22	6 40

An extra 40c per 100 lbs. is charged for Key stone and Premier brands copper-bearing sheets. An extra is now charged on galvanized sheets. 10¾ oz. and 28 ga., when shipped out in sheets 3 feet wide. The extra charged over prices shown in 20c. per 100 pounds.

TANK STEEL PLATES—

¼-in. and heavier, base	3 60
3-16 in.	3 95

BLUE ANNEALED SHEETS—

10 gauge, base	4 50	4 60
12 gauge	4 55	4 65
14 gauge	4 60	4 70
16 gauge	4 65	4 75

BLACK SHEETS—

18-20 gauge	5 25	5 35
22-24 gauge	5 30	5 40
26 gauge	5 35	5 45
28 gauge	5 50	5 60

A charge of 25c per 100 lbs. is made for less than case lots. An extra 10c. per 100 lbs. is also charged on sheets 26 in. wide.

RADIATORS AND BOILERS UNCHANGED IN PRICE

Toronto.

The revision in the quotations on boilers and radiators which took effect recently continues to govern prices on this line. Little activity is reported for the week, trading having become somewhat quieter than formerly. To-day's quotations are as follows:

RADIATORS AND BOILERS—

Revised radiator list prices are for 1, 2, 3, 4 and 5-column radiators per square foot.

38 in., \$1; 32 in., \$1.10; 30 in., \$1.15; 26 in., \$1.20; 23 in., \$1.26; 22 in., \$1.30; 20 in., \$1.36; 18 in., \$1.40; 16 in., \$1.50; 14 in., \$1.55; 13 in., \$1.60.	
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Discount on 2, 3, 4 and 5 column standard sizes, 44 per cent. for water and 45 per cent. for steam.

Discount on 1-column standard size, and 2, 3, and 4-column hospital sizes 35 per cent. for water and 37 per cent. for steam.

Wall radiators—5 ft., \$1.15; 6 ft., \$1.10; 7 ft., \$1.05; 9 ft., \$1.05; 12 ft., \$1.05. Discount 41 per cent.

BOILERS—

Water:

Round 52 per cent. off list. Square 8 per cent. off list.

Steam:

Round, 13 per cent. off list; Square, list plus 7 per cent.

STRENGTH EVIDENT IN BOILER TUBE MARKET

Toronto.

Primary tube quotations are gradually becoming firmer with the improvement in trading in this line, as a result of the opening of spring. Local values have so far not been affected by this firmness, but a strong undertone characterizes this market and higher prices would not be surprising in the near future.

BOILER TUBES—

Size	Seamless.	Lap-weld
3/4 inch	\$19 00	\$....
1 inch	20 00	....
1 1/4 inch	22 00	....
1 1/2 inch	24 00	....
1 3/4 inch	24 00	23 00
2 inch	22 00	19 00
2 1/4 inch	24 00	21 50
2 1/2 inch	27 00	23 50
3 inch	34 00	28 50
3 1/4 inch	36 00	33 00
3 1/2 inch	38 00	33 00
4 inch	50 00	42 00

ENAMELED WARE BECOMING ACTIVE IN SALES

Toronto.

Early trading was reported somewhat light in enameled ware but recent developments have uncovered some good orders for immediate shipment and the outlook is considered bright for business in this line during the balance of the season. Quotations on the various lines locally are as follows:

ENAMELED WARE—

Enameled Iron Baths, 3" roll rim, 4 ft., 4 ft. 6 in., 5 ft.	51 40
Do., 5 1/2 ft.	57 10
Lavatories—	
17x10" Apron F139 or P4045	15 30
18x24" Apron F154 or P3845 or P3847	23 60
18x21" Apron F169 or P4205	17 60
18x21" Roll Rim, F197, F199 or P4655-6	15 40
17x19" Roll Rim, F241 or P4345	12 60
Sinks, Roll Rim, 16x24 in.	18 40
Do., 18 x 30 in.	23 00
Do., 20 x 30 in.	24 70
Sinks, Flat Rim—	
16x24	\$7 60 \$7 70 \$7 80
18x30	8 50 8 60 8 70
20x30	9 70 9 80 9 90
List less 30 per cent.	

CORRUGATED SHEET PRICES SHOW NO CHANGE

Toronto.

Quotations on corrugated sheets remain at the levels reached early in the

month. There is a feeling in local distributing centres that the present prices will be maintained for some time. Basic market reports indicate a firm undertone in this product. Average prices on the local market follow:

CORRUGATED SHEETS—	Per 100 sq. ft.
No. 28 gauge	7 00
No. 26 gauge	7 50
No. 24 gauge	10 00
No. 22 gauge	12 50
No. 20 gauge	14 00
No. 18 gauge	19 00
Less 10 per cent.	

Lighter than 24 gauge and wider than 27 ins., 75 cents per square extra.

IRON PIPE PRICES HOLD FIRM AND UNCHANGED

Toronto.

There is no change in quotations on iron pipe since the revision of February. This market has been somewhat dull for some time but good sales are reported this week. Price list No. 58 which follows governs quotations locally:

WROUGHT PIPE

Price List No. 58.		February, 1922.			
Standard Butt-weld		Pipe S/C			
Size	Steel Blk.	Gen. Galv.	Wrot. Blk.	Iron Galv.	
1/8 in.	6.00	8.00	....	....
1/4 in.	4.14	6.12	7.38	9.42	
3/8 in.	4.14	6.12	7.38	9.42	
1/2 in.	5.27	6.72	7.57	9.10	
3/4 in.	6.44	8.05	9.20	10.93	
1 in.	9.18	11.56	13.26	15.81	
1 1/4 in.	12.42	15.64	17.94	21.39	
1 1/2 in.	14.85	18.70	21.45	25.58	
2 in.	19.98	25.16	28.86	34.41	
2 1/2 in.	31.59	39.78	....	....
3 in.	41.31	52.02	....	....
3 1/2 in.	53.36	66.24	....	....
4 in.	63.22	78.48	....	....

Standard Lap-weld Pipe S/C

Size	Steel Blk.	Gen. Galv.	Wrot. Blk.	Iron Galv.
2 in.	23.31	28.49	32.19	37.74
2 1/2 in.	34.52	42.71	48.56	57.33
3 in.	45.14	55.85	63.50	74.97
3 1/2 in.	54.28	67.16	76.36	90.16
4 in.	64.31	79.57	90.47	106.82
4 1/2 in.	74.93	92.71	110.00	130
5 in.	87.32	108.04	129	151
6 in.	1.13	1.40	1.67	1.96
7 in.	1.48	1.83	2.14	2.55
8 in.	1.55	1.93	2.25	2.68
8L in.	1.79	2.22	2.59	3.08
9 in.	2.17	2.69	....	....
10L in.	2.02	2.50	2.91	3.46
10 in.	2.60	3.21	3.75	4.45

SILL, WASTE COCKS AND COM- PRESSION STOPS AT REVISED LEVELS

Winnipeg.

Sill cocks with rough body and wheel handle are quoted at list price less 47 per cent. Wash tray bibbs with bent spout are quoted at 46 per cent. Boiler drain cocks are quoted at 84 cents each. Compression stops with tee handle are quoted at list price less 42 per cent. Lavatory compression stops with wheel handle at list price \$22.20 less 37 per cent. for 3/8 inch and \$26.40 for 1/2 inch less 37 per cent. Angle lavatory compression stops nickel plated 3/8 inch are quoted at \$22.20 less 37 per cent. and 1/2 inch at \$26.40 less 37 per cent. Reversible handle, patent cap, stop and waste cocks are quoted at list price less 30 per cent. and rough body with wheel handle at 62 per cent.

COMPRESSION BIBBS AT REVISED QUOTATIONS

Winnipeg.

Compression bibbs of all variety show a revision in discount. Plain compression bibbs with outside thread and shoulder for iron pipe with plain spout are quoted at list price less 42 per cent. Self-closing bibbs are quoted at 37 per cent. Compression hose bibbs at 42 per cent. Compression flange bibb and hexagon shoulder with adjustable set screw flange plain spout and tee handle at 42 per cent., and the same variety with a brass index handle at the same discount. Rapidac with hexagon shoulder, adjustable set screw flange, plain spout and china lever handle at 40 per cent. Extra self-closing bibbs at 37 per cent. Solid flange plain compression bibbs at 42 per cent. and rough compression bibbs for tanks at 40 and 5 per cent.

NEW PRICES IN EFFECT ON COM- PRESSION BATH COCKS

Winnipeg.

New quotations are in effect on all lines of compression bath cocks and the latest prices are as follows:

COMPRESSION BATH COCKS—

No. 817, index cross handles, nickel plated, each	\$6 80 less 37%
No. 818, Plain cross handles, nickel plated, each	8 20 less 37%
No. 817A Brass handles, nickel plated, each	3 00
No. 818A Index cross handles, nickel plated, each	5 80 less 35%
No. 818B Index cross handles, nickel plated, each	7 20 less 35%
No. 819 Quick pression index handle, each	9 50 less 47%
No. 819A Quick pression index handle	10 90 less 47%
No. 819 1/2 Rapidac bath cocks, nickel plated, each	9 50 less 47%
No. 819 1/2A Rapidac bath cocks, nickel plated, each	10 90 less 47%

HIGHER QUOTATIONS ON BASIN COCKS

Winnipeg.

Higher prices are in effect on basin cocks. Compression basin cocks with 4 arm brass index handle nickel plated are quoted at list price less 28 per cent. Rapidac basin cocks with china index and side lever handle nickel plated at 45 per cent., and the same pattern with

Winnipeg Markets

WINNIPEG, April 13.—Important price changes are again in evidence in local market reports, with the majority of adjustments towards higher levels. Sill, waste cocks and compression stops have advanced. Compression bibbs show revisions in quotations. Basin cocks have moved upwards. Steam and water radiators show an upward revision. Royal square boilers are quoted at higher levels. Another advance has been recorded on copper rivets and burrs. Bath and lavatory supply pipes have moved upwards. Cast iron check valves show slight decline.

BATH SUPPLY PIPES AT HIGHER LEVELS

Winnipeg.

Higher prices are in effect on bath supply pipes also lavatory supply pipes. Bath pipes are quoted at \$2.75 per pair and lavatory pipes range from \$2.50 to \$4.00.

SOIL PIPE AND FITTINGS CONTINUE

Winnipeg.

A firm undertone continues to feature the market locally in soil pipe and fittings. There is a fair demand and as the spring opens up an improvement is expected. Prices show no change.

brass index at 40 per cent. Self-closing basin cocks and pantry cocks are quoted at list price less 37 per cent. and 29 per cent.

CLOSET TANKS AT UNCHANGED PRICES

Winnipeg.

Quotations on closet tanks finished in dark oak vitro and white vitro are quoted as follows: Dark oak vitro complete with fittings, elbow and supply pipes are quoted at \$16, less supply pipe elbow and coupling at \$14.50. White vitro complete is quoted at \$18.50 and \$17 less supply pipe elbow and coupling.

REVISION IN QUOTATIONS ON STEAM AND WATER RADIATORS

Winnipeg.

Two, three, four and five column steam and water radiators show an upward revision in discounts. Steam is quoted at 39 per cent. and water at 38 per cent. Hospital radiators and wall radiators also show new discount. Steam hospital radiators are quoted at 31 per cent. and water at 30 per cent. with wall radiators at 35 per cent.

ROYAL SQUARE BOILERS AT HIGHER LEVELS

Winnipeg.

There has been a revision in discounts on series 48 inch water and steam royal square sectional boilers. Water is list price plus 17 per cent. and steam at 24 per cent. 36, 25 and 19 inch series are quoted at water 2 per cent. and steam plus 13 per cent. Round hot water boilers show a revision as well and discount is 48 per cent. Round steam boilers are list price less 7 per cent.

ADVANCE IN COPPER RIVETS AND BURRS

Winnipeg.

Another advance in price is in effect on the false floor, at one side of your are given below:

COPPER RIVETS—

No. 8, per lb.	0 52 1/2
No. 10, per lb.	0 56 3/4
No. 12, per lb.	0 61

COPPER BURRS—

No. 8, per lb.	0 72 1/2
No. 9, per lb.	0 74 1/2
No. 10, per lb.	0 76 3/4
No. 12, per lb.	0 61

RIVETS AND BURRS ASSORTED—

No. 8, per lb.	0 58 3/4
No. 9, per lb.	0 61
No. 10, per lb.	0 63

SLIGHT DECLINE IN CAST IRON CHECK VALVES

Winnipeg.

Check valves have shown a slight decline and 3/4 inch is quoted at \$1.70 each, one inch at \$2.00 and 1 1/4 inch at \$2.25.

NEW GOODS OF INTEREST TO THE PLUMBING TRADE

Riddell Conductor Elbows

John E. Riddell & Son Ltd., Hamilton, Ont., are now manufacturing for Canada the "Riddell" conductor elbow, in the pattern which was formerly obtainable only in the imported article. The manufacturers state that special attention has

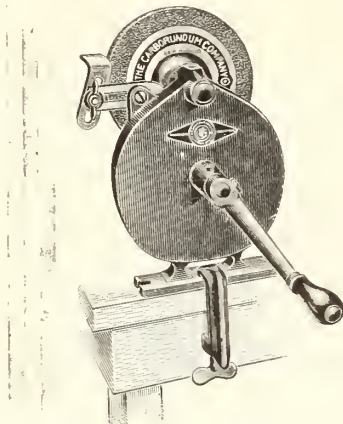
been paid to the construction of these elbows and that the results are perfect fit, correct angle, full length and a per-



fectly smooth surface inside. They also point out that by crimping the new elbows on the outside instead of the inside, no cavities are left to fill with moisture or dirt. Another feature said to characterize this product is the special process of galvanizing which is done electrically and is said to produce a bright lasting finish. The new elbows are made in all standard sizes, plain and corrugated.

Carborundum Grinder

The Carborundum Co. of Niagara Falls, N. Y., are introducing an improved Carborundum Niagara Grinder. Some radical changes are said to characterize the construction of this new grinder, for instance the main casting and the base are cast in one, and the clamp is



a separate piece entirely. It is claimed that this will prevent breaking the base casting when the clamp is tightened. Another change noted is the slotting of the base casting for screws or bolts with which to permanently fasten the grinder to a bench. The makers also point out that each machine is equipped with a genuine Carborundum grinding wheel and a specially constructed adjustable tool grinding guide for use in sharpening edge tools at any angle. The improved grinder is being made in three sizes and are numbered 1, 2 and 3.

Buys Site for Industry

Collingwood, Ont.—Cap't. F. A. Bassett, President of the Postel Lock-Nut Company, announces the purchase of very desirable manufacturing property with easy access to railway sidings and lake connection. Plans for operation of a factory and the marketing of the company's product are being rushed.

Oil Burner Plant in Stratford

Stratford, Ont.—A deal has been closed whereby the Imperial Burners Ltd., manufacturers of fuel oil heaters, takes over the Bridge and Iron Works plant. This company with branches at Welland, Hamilton and Toronto will establish the local plant for assembling.

TWO TIMELY WINDOW DISPLAYS

(Continued from page 25)

about one foot back from the glass; about 8 inches above the regular floor of the window. Between the glass and the front edge of the false floor there should be a sloping front built. This sloping front should be covered with window decorator's artificial grass or fine cut excelsior dyed green; or in some other way, grass sod should be represented. Back of this, as indicated in the picture, place on the false floor, at one side of your window, a little pasteboard model of a house; at the other side of the window a little pasteboard model of a plumbing store. These should be painted in water colors to give the proper appearance.

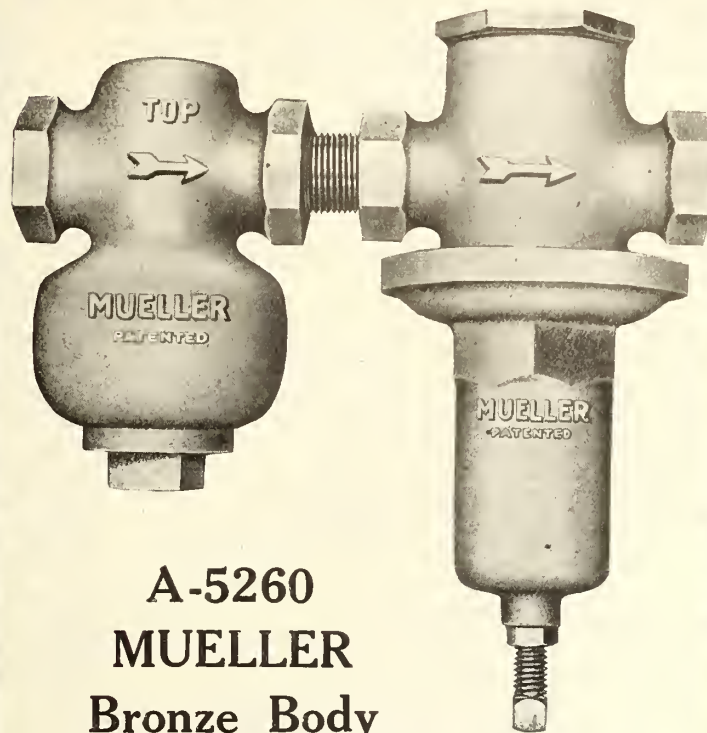
Indicate a roadway between the house and store by using sand or fine gravel. Place in the center of the window, on the roadway, a toy automobile truck loaded with miniature fixtures whittled out of soft wood and finished in white enamel paint. The appearance of lengths of pipe can be very readily produced by using small brass or steel rods.

Back of the roadway and truck, etc., the rest of the false floor should also be covered with substance representing grass. In the rear of the window, a background made of beaver board, cut out in the center and decorated as shown by the pictures, should be erected with two wings extending toward the front of the window. In the cut-out section of the background, a cut-out, of a large question mark, should be suspended with very fine black wire.

A card with the word "Solved" should be placed directly under the question mark; and the words, "A Bath in Every Home" should be properly lettered in place as indicated by the picture.

A few inches still further to the rear of the window, the cut-out section of this background should be backed up with a sheet of beaver board, painted vertically with black and white stripes about one inch in diameter.

With the addition of cards as shown at the front and sides of the window, you will then have a very effective "Bath in Every Home" display.



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Reducing & Regulating Valve

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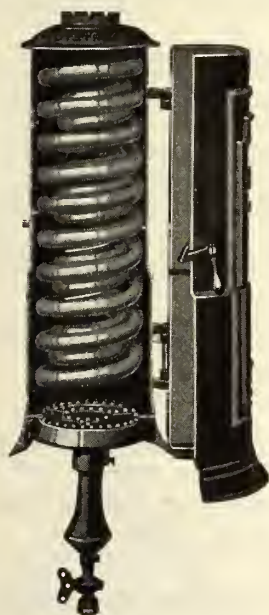
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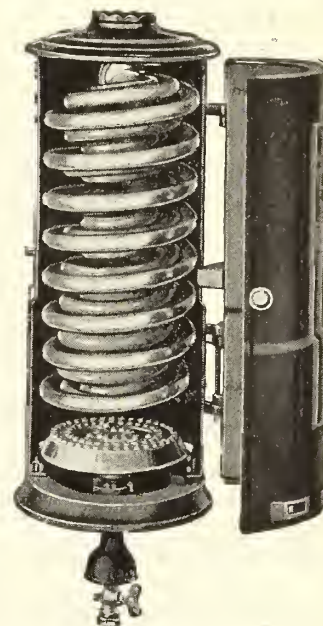
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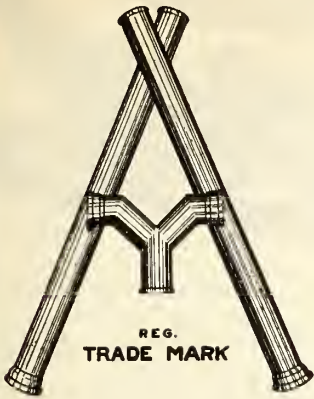
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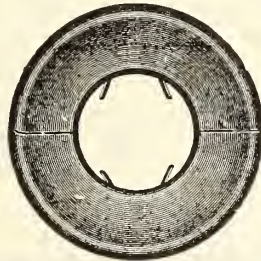
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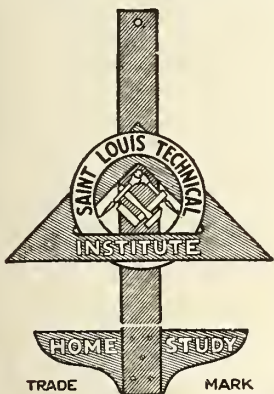
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TAYLOR SAFES FOR SALE—RARE OPPORTUNITY to secure a safe at small cost. They are in splendid condition. Inside dimensions and prices are as follows: 15 in. deep, 2 ft. 6 in. wide, 3 ft. 11 1/2 in. high, fitted with built-in compartment. Price \$250.00. 18 in. deep, 2 ft. 8 in. wide, 4 ft. 5 in. high, fitted with steel compartment. Price \$200.00. Apply Box No. 701, Sanitary Engineer, Toronto.

The Difference in Advertising Is the Difference in Men

Of itself, advertising is little. And the differences in it are the differences which exist in men.

Just as some men are strong and virile and interesting, so is some advertising. And just as some men are ineffectual and weak and boring, so is some other advertising.

"Does it pay to advertise?" It pays those men who are keen enough students of the public to make it pay them. It pays those men who are truthful, sincere, interesting and believable.

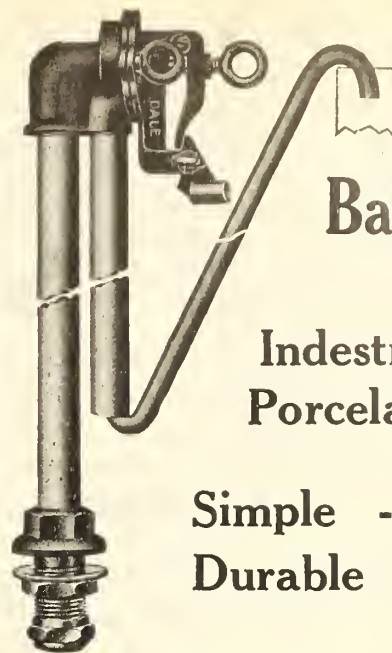
It pays the men whose product deserves the payment, whose brains are keen enough to organize for success and judge enough of the human mind to know how to tell their story with sincerity and interest.

So when you judge advertising, judge it by how it is used and by whom—not of itself and of itself alone.

Remember, an ugly man looks just as ugly in a mirror.

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**Dale
Ball Cocks**

**Indestructible
Porcelain Seat**

**Simple - Reliable
Durable - Quiet**

Unconditionally Guaranteed

WOLVERINE
LIMITED

76 Nelson St. Toronto-

**"Sure Seat" Tank
Balls**



**Finest
Quality
Pure
Gum
Rubber**

Packed in Individual Boxes

**It pays to have Wolverine articles on hand
for instant use.**

ORDER NOW



The Martin Portable Vise Stand

light in weight—
only fifty pounds

Can be carried anywhere without inconvenience.

Put up in two seconds; no bolts, screws or fastenings needed.

Use the Martin Portable Vise Stand where pipe or conduit must be bent, cut or threaded. 10 days free trial.

If your jobber can't supply you—write us.

H. P. MARTIN & SONS

803 W. 12th Street OWENSBORO, KY.

CANADIAN REPRESENTATIVE:—L. F. Mayne, 875 Trafalgar Street, London, Ontario.



Tapped Closet Bend

Easier to attach
More permanent
Cost less



WROUGHT PIPE



Suitable for the approaching period of building activity, road construction, etc. This is a line of great importance in making successful, profitable contracts. Our C. T. Brand of Wrought Pipe has been

THOROUGHLY INSPECTED

by practical, experienced men. It is tested to 600 lbs. hydraulic pressure, and branded with our trade-mark. We carry this line of reliable pipe in sizes 1/8-in. to 4-in. Black or Galvanized. We also manufacture nipples and couplings, black and galvanized, in all sizes.

Ask your Jobber for C. T. Brand Wrought Pipe

Canadian Tube and Steel Products Co., Ltd.
Operating Canadian Tube and Iron Co., Limited
Works at Lachine Canal, Montreal

SANITARY ENGINEER'S

unique circulation as proven by the A.B.C. Audit is due to our honest effort to give the retail trade the best possible service.

WHAT IS YOUR ADVERTISING DOLLAR BUYING?

High prices of materials and increased overhead have made necessary a stricter economy along mercantile lines.

Advertising should be considered as well as the commodities in which merchants deal.

By choosing only those publications whose circulation is accurately measured, you not only practise economy in your advertising, but are assured that your money is buying a definite quantity of circulation.

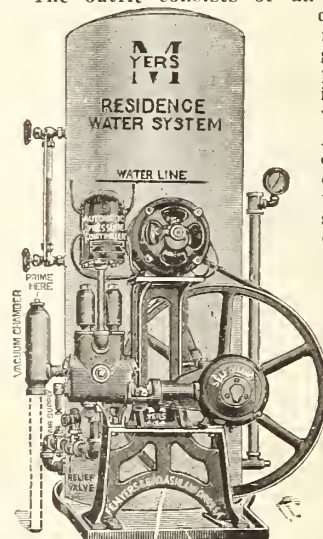
The Sanitary Engineer circulation is measured by the Audit Bureau of Circulations. Advertising placed in its columns is an economical investment.

PNEUMATIC WATER SUPPLY SYSTEM

Gives country residents all the advantages of a city water system without the excessive cost

The wide-awake dealer will make big profits out of this system among customers who now have difficulty with their water supply. It is so simple to operate and costs practically nothing for upkeep.

The outfit consists of an air-tight steel tank which can be placed in the basement, and a "Myers" famous guaranteed pump (hand or power), suitable for pumping air or water, together with pipes and fittings. Any plumber or gas fitter can easily install it. Every outfit guaranteed to do the work for which it is designed. For small or large dwellings.



Write us for Water System Catalogue and prices. Now is the time to interest your customers.

The
STEEL TROUGH & MACHINE CO., LTD.

Tweed, Ontario

TORONTO OFFICE:—220 King St. West; A. R. Wooldridge, Representative.

MONTREAL OFFICE:—10 Victoria St., G. M. Price, Representative.

DART

UNIONS

Union Pipe Couplings

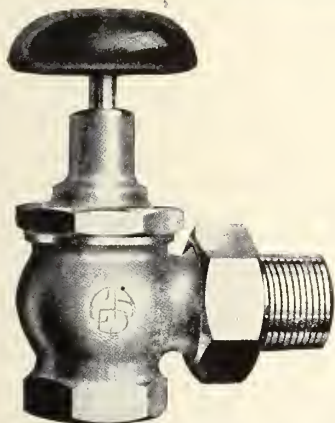
are practically indestructible because they are made of Heavy Malleable Castings, and the joint being Bronze against Bronze, gives the strongest kind of guarantee that the Dart will stay as tight as it is first made when screwed to a pipe line.

The Dart's reputation is based on the opinion of others; ask anyone who has had experience with Dart Unions, regarding their efficiency.

ORDER FROM YOUR JOBBER. There's a variety of styles to fill all requirements.

MANUFACTURED BY

DART UNION CO., LIMITED
TORONTO, ONTARIO



Type No. 140—Made in all Patterns
The interchangeable parts shown below are of selected, time-tested materials that insure long life. Ultimate renewals may be made at a minimum of cost and inconvenience.

Dunham Packless Radiator Valves

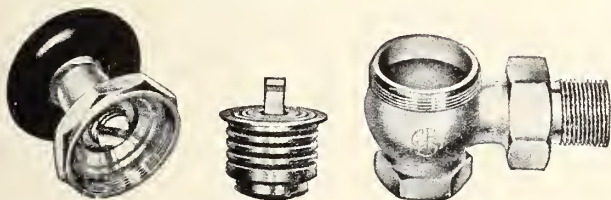
With Wheel-Type Handle and Interchangeable Parts

This is constructed with built up bellows just like the Dunham-Lever Handle Valve and can be fully opened or closed with approximately one turn of the handle. It is particularly popular with heating contractors because of its effectiveness on steam or hot water type radiators and its convenience for either top or bottom connection. Sturdy, good looking and absolutely leak proof.

Write to us for additional information or consult our nearest branch office.

C. A. Dunham Co., Ltd. - Toronto, Ont.

Halifax, Vancouver, Winnipeg, Ottawa, Montreal, Calgary.
London, Eng.: 18 St. Thomas St., S.E. 1.



The DUNHAM
REG. TRADE-MARK
HEATING SERVICE

MADE in CANADA

Approval

The New Design Vitro has captured the public imagination; the sheer beauty of its line and finish plus its sturdy, practical value has placed it unquestionably in the position of leadership.

This is proven by the fact that there are more Vitros sold to-day than any other tank on the market—compelling proof of the public's appreciation of this company's constant effort to give something better.

Your Jobber sells them.

Galt Brass Company, Limited

GALT - - ONTARIO

VITRO
NOTROUBLE
TANK



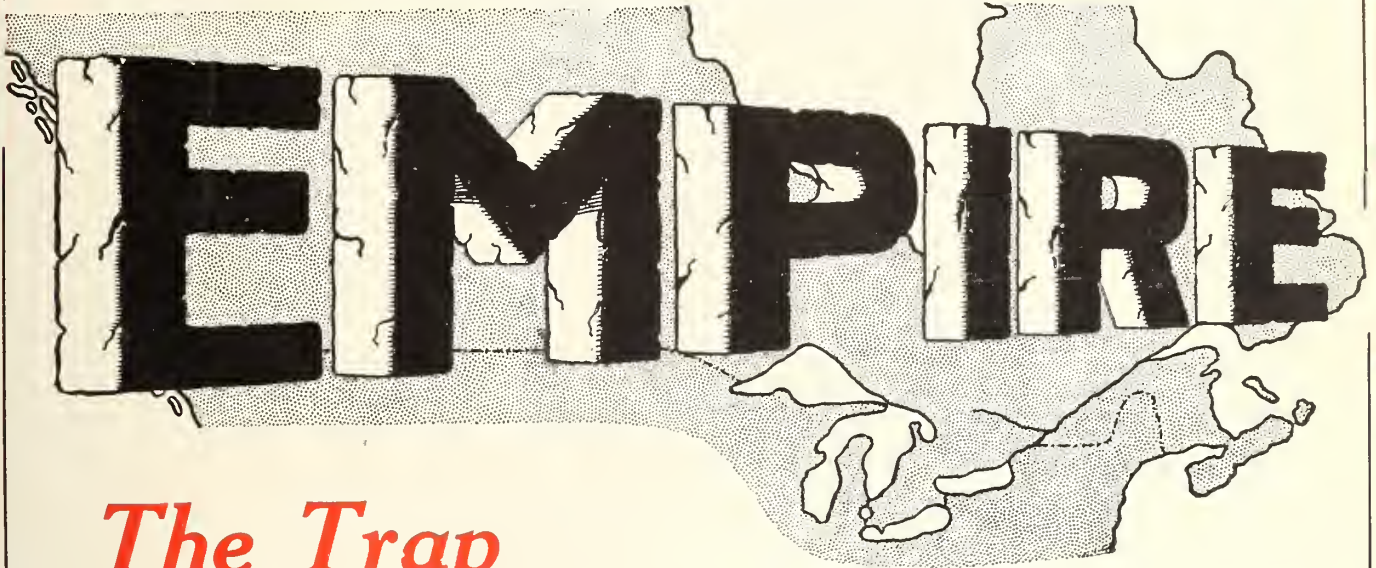
Sanitary Engineer

Plumber and Steamfitter of Canada

Vol. XVII.

PUBLICATION OFFICE, TORONTO, MAY 1, 1923

No. 9



The Trap That Cleans Easily



Waste pipes cannot become sluggish or foul if the "Emco" A-1829 Centrifugal Trap is installed under the fixture. As the name implies, the action of this trap is centrifugal. It has an adjustable sink connection and the elbow swings to facilitate easy installation on sinks. The cleanout at bottom is an important feature.

Use this "Emco" Trap in your business.

Empire Brass Mfg. Company Ltd.

London and Toronto, Canada

The attractive and artistic Design of **“PUSSYFOOT” CLOSET TANKS**

appeals to all Home Builders and Home Seekers and gives Dignity and Finish to the Bath Room, as well as additional value to the House.

FURTHERMORE—

it is manufactured from carefully selected material of the finest grade and

WILL LAST A LIFETIME

The Simple
Silent
and Reliable
action of the Valve
has won for it
FIRST PLACE
amongst Closet Tanks
and
Sanitary Engineers
throughout
the Dominion
proclaim it
“THE
BEST
TANK
MADE”



Finished in
Oak
Mahogany or
White

Every part of each
Tank thoroughly test-
ed before it leaves
our Plant, and our
Guarantee label is
affixed to the lid.

You pay no more
BUT—
YOU
GET
BETTER
VALUE

Stocked by Every Jobber
Specify “PUSSYFOOT” when ordering

THE CANADA METAL COMPANY
LIMITED

Montreal Hamilton TORONTO Winnipeg Vancouver

Do You Prefer A "Square Base" Closet?



No. 132

THE straighter lines of the so-called "Square Base" type of foot on the ordinary washdown closet finds favor with many customers.

To meet the demand for this particular type of closet, our No. 132 has been designed.

THIS closet is uniform with all other articles which we manufacture—solid vitreous through and through.

Installed with a "Bellemeade Junior" solid vitreous lowdown tank, the combination is ideal for any toilet room; particularly where economy is a consideration.

CANADIAN POTTERIES LIMITED

SAINT JOHNS
QUEBEC

Sales handled exclusively through recognized jobbers in plumbing supplies



Are Plumbers Robbers?



In the minds of the average man the Plumber is worse than a highwayman, his charges are exorbitant and he is rolling in wealth, but this is not borne out by facts, for very few Sanitary Engineers have even made a moderate fortune.

Why This Reputation?

The reason for this unfair attitude on the part of the public has been that the average Sanitary Engineer has never had any business-like method of making his charges, and because there has been too much variation in quoting on jobs. In other words up until the arrival of The Henderson Pricing System it has been a case of guesswork.

Investigate this System Now—To-day



**Cut Out and
Mail This** →

HENDERSON BUSINESS SERVICE, LTD.,
Box 123, Brantford, Ont.

Send me your booklet "Profit Insurance" and tell me something about your Pricing System.

Name

Address

No obligation whatever.

Henderson Business Service Limited

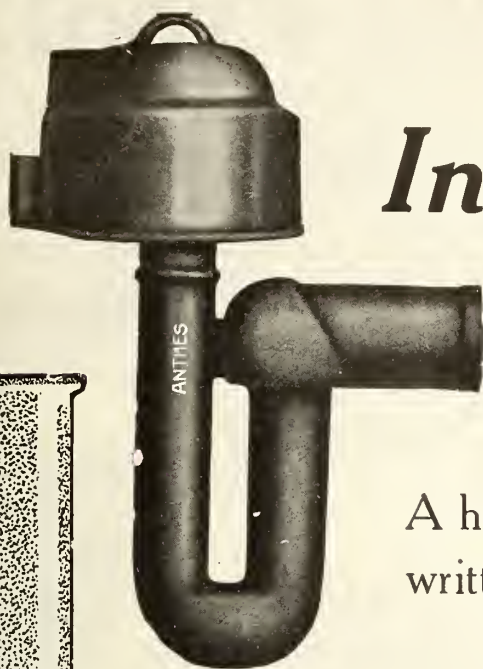
Specialists

Box 123

Farmers' Building

Brantford, Ont.

Anthes Soil Pipe is an Insurance Policy



A house is insured against fire by
written guarantee—

The heart
of the sew-
age disposal
system is
the "Anthes
Syphon."

A Barn is guarded against the elements
by lightning rods—So is a sewage dis-
posal system insured to endure, by the
installation of Anthes Soil Pipe.

All that quality of material and high-
class workmanship can provide has
made Anthes Soil Pipe the standard for
every sewage disposal installation.

Specify "Anthes"—the cheapest soil
pipe in the end.

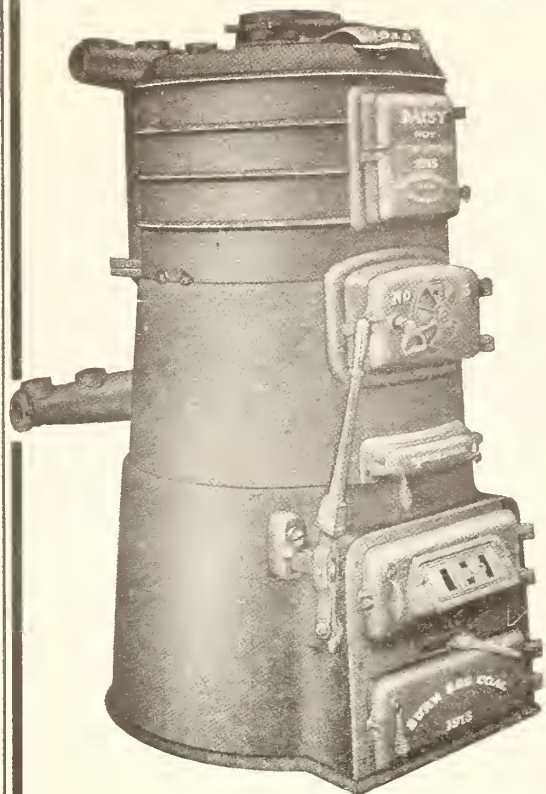
Anthes Foundry Limited

Toronto and Winnipeg

Manufacturers of Cast Iron Soil Pipe and Fittings

ANTHES

ANTHES



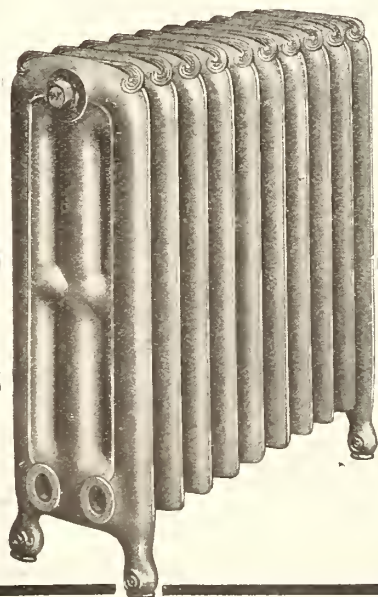
60,000 Proofs that Warden King Boilers Satisfy

Scattered over the Dominion are more than 60,000 thoroughly satisfied users of Warden King Boilers and Radiators. Modest bungalows and potential residences alike share in Warden King fuel economy.

With the evidence we place in our dealers' hands—actual testimonials from delighted users—even the most skeptical prospect can be convinced of Warden King superiority.

Four Reasons Why You Should Sell Daisy Heaters.

1. Can be recommended as a fuel saver.
2. Heating capacity guaranteed.
3. Customers thoroughly satisfied.
4. Nets you big profits.



Warden King LIMITED

Montreal, Quebec

Branch Office :

136 Simcoe St. Toronto

*Write today for the Dealer
proposition.*

"Standard"
PLUMBING FIXTURES

Standard Sanitary Mfg. Co., LIMITED, TORONTO

Two Bathrooms Instead of One

A home is modern and thoroughly comfortable when it has at least two complete bathrooms.

Two bathrooms instead of one! There is a real selling idea. Talk it to prospective house builders and architects. And be sure the bathrooms are "Standard" equipped.

Standard Sanitary Mfg. Co.
Limited

General Office and Factory:

Royce and Lansdowne Aves., Toronto, Ont.

Toronto Showroom:
55-59 Richmond St. E.
Montreal:
New Birks Building

Winnipeg Showroom:
76 Lombard St.
Calgary:
325 Eighth Ave. W.

Hamilton Store:
20-28 Jackson St. W.
Vancouver:
860 Cambie St.

"MADE IN CANADA"

Advertising to Build Up Business

A valuable service is being rendered plumbers and builders by the strong advertising campaign for "Standard" Plumbing Fixtures now running in Canada's newspapers and magazines.

The cut here used is a sample of this advertising.

The Marvel

Heater and Tank Combined

Can't Wear Out, Burn Out, nor Rust Out

The Marvel is free from coils, disks, or other parts that ordinarily wear out, burn out, rust out or break. Because of the constant circulation of the water it will not lime up nor become clogged. The Marvel—compact, simple, low priced and efficient—will give your customers long years of smooth service.

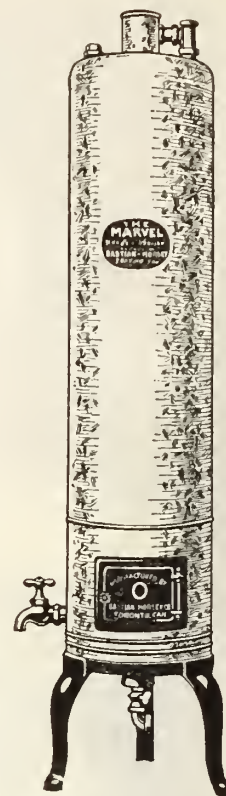
Entirely different both in heating principle and in design, the Marvel offers more and better service for a fraction of the cost of an old style heater.

Write Today for Full Particulars.

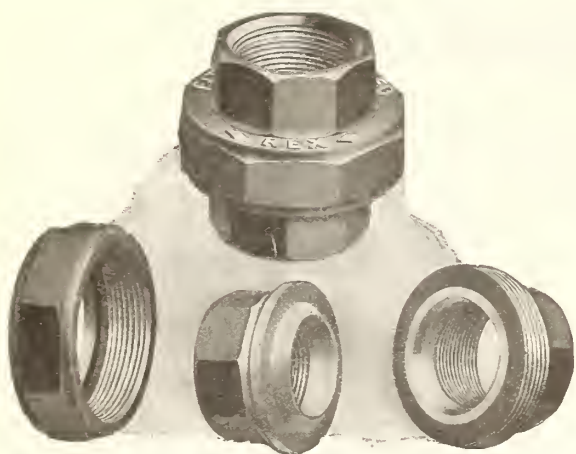
Sold Only Through or by Plumbers

BASTIAN-MORLEY LIMITED

125 Hanson St., TORONTO



Seven Points of "REX" Union Superiority



- 1 "Rex" Unions are tested and guaranteed to stand 250 lbs. working pressure.
- 2 The counterbored ends prevent the first thread becoming battered and permits an easy entrance of the pipe.
- 3 They will not corrode and will withstand vibration, expansion, contraction, fluctuating pressures and other severe conditions.
- 4 The bronze to iron seat, as used in "Rex" Unions, is recognized as the best known combination of metals to be used for permanent joints and where frequent disconnecting is necessary.
- 5 The octagonal shape of the three parts permits of connections being made with an ordinary monkey wrench.
- 6 The uniform diameter of the waterway insures an unobstructed flow and thorough drainage.
- 7 "Rex" Unions can be supplied threaded to either Briggs or Whitworth Standard and can therefore be used for your export trade.

A Proof of "REX" Union Superiority

Canadian Car & Foundry Company, Limited
Montreal, Que.

FITTINGS, LIMITED, Oshawa, Ont.

Dears Sirs:—Confirming our conversation with regard to Rex Unions; as you are aware, we have recently purchased from your Company a large quantity of Rex Unions, and have found them satisfactory in every respect. They appear to have more metal in them than other Unions, and we also find them interchangeable; in fact we are very well pleased with them and intend specifying your Unions on our orders where we can consistently do so.

Yours very truly,

CANADIAN CAR & FOUNDRY COMPANY, LIMITED.

FITTINGS LIMITED

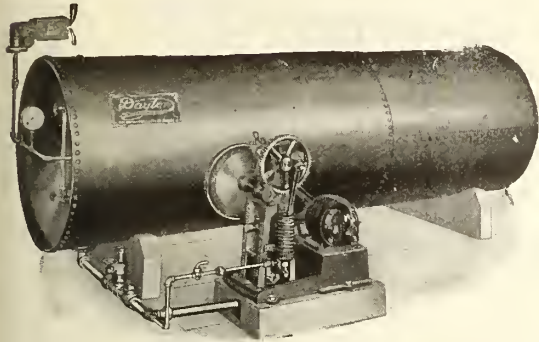
Oshawa, Canada



Manufacturers of
"DIAMOND" PIPE FITTINGS

Sell a Salesman

First—a "Dayton" Water System



Type 60 "DAYTON" Deep Well System
Either flexible chain drive or direct geared.
Deep Well Units in 4", 6", 8" and 12"
stroke.

It has been proven from carefully kept records that the sale of a \$200.00 water supply system results in the further sale of an average of \$400.00 worth of plumbing fixtures and supplies. The average plumbing dealer is in a better position to realize the full value from the sale of a water system than any other class of business. There is an enormous market in small towns and country districts waiting to be developed and the local plumbing dealer is the one who will do it.

To get this attractive business, you must handle a water system that will make satisfied users and a line from which you can always select the size and type of outfit to suit the job you have on hand. In addition, a modern, up-to-date selling plan that will stimulate business without expense to you is important.

The "DAYTON" line of Water Supply Systems offers these things to you. Send the coupon and get the details of how we will help you cash in on this profitable business.

T. G. GRIFFITH & COMPANY

Manufacturers and Sanitary Engineers

165 KING ST., E.

TORONTO

Distributors in Ontario for

THE DAYTON PUMP & MANUFACTURING CO.
DAYTON, OHIO, U.S.A.

Send me the "DAYTON" Water System
Catalog and details of the "DAYTON"
Selling Plan.

Name

Street

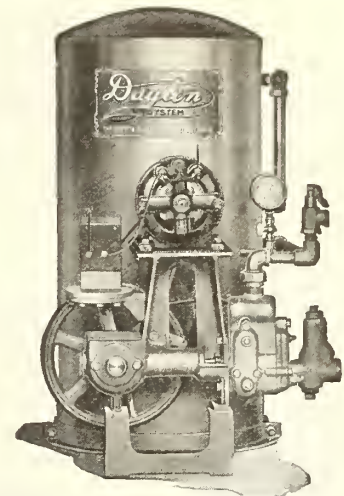
Town

Province

After that—

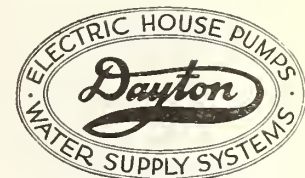
PIPING
LAVATORIES
BATH TUBS
CLOSETS
SINKS

will sell themselves



"DAYTON UNISYSTEM"

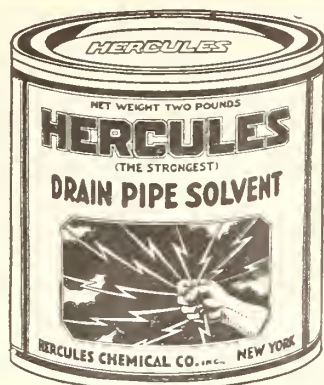
"DAYTON" Suction Systems in
capacities of 100, 150, 240, 350,
720 and 900 Gals. per hour.
Tanks any size.



It's not a "DAYTON" Without
this Trademark.

Dayton Pumps

Make the water do the running



We have for your use an envelope enclosure describing the merits of **HERCULES** Drain Pipe Solvent. We will be glad to send you several hundred imprinted with your name and address.

Send them out with your monthly statements. They will help your sales.

Sell **HERCULES** over your counter!

There is a mighty big field in the resale business for you.

HERCULES is sold exclusively to the plumbing trade. It is **YOUR** product. This fact, together with the increasing demand for **HERCULES** over other solvents, insures business that must come to the plumber.

Hotels, restaurants, clubs, hospitals, office buildings, garages, residences, etc., all will call on you sooner or later.

It is by no means unusual to sell **HERCULES** in carton or case lots over your counter and the profits are **BIG**. Even the profit on a single can isn't to be sneezed at.

Get busy **NOW**. Write for prices and full information.

HERCULES CHEMICAL CO.

440 Washington St.

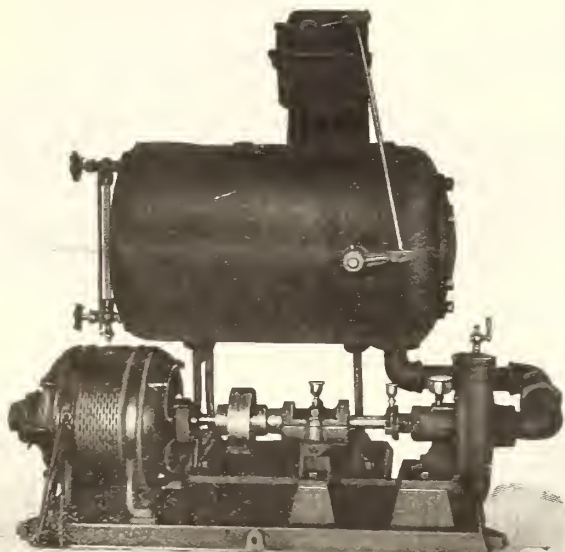
Canadian Distributors:

New York City

CUNNINGHAM & HILL, Toronto, Canada

SMART-TURNER Automatic Feed Pump and Reservoir

Each heating job requires individual attention and an expert heating engineer's advice. Smart-Turner Pumps are supplied to all heating contracts to meet the particular conditions.



No. W-155

The pump illustrated here is one commonly connected with systems operating on low pressure. It is equipped with automatic magnetic switch control. Either multi-stage Centrifugal, Triplex or Duplex Power Pumps may be used on these outfits.

The Smart-Turner Machine Co., Limited, are always ready to confer with any heating engineer and supply the class of pump necessary to the situation.

Order your Fisher Steam Specialties from us. We are the representatives.

A few vertical gasoline engines and semi-rotary pumps on hand at reduced prices.

The Smart-Turner Machine Co., Ltd.

HAMILTON

CANADA

Dunham Radiator Traps Insure Service that is Noiseless—Sure—Lasting



No. 1



No. 2



No. 3



No. 4



No. 5

The Dunham Two-Part Radiator Trap

Made in five sizes as shown. The Nos. 1, 2 and 3 Traps are regularly furnished nickel-plated and with union nut and nipple, threaded right hand. They may be supplied in angle, straightway, right hand, or left hand pattern. The body and cover are made of red brass.

The Nos. 4 and 5 Traps are painted battleship gray and furnished in either angle or straightway patterns with female right hand threaded connections, both inlet and outlet. The body and cover are made of the best gray cast iron.

Maximum operating pressure ten (10) pounds gauge.

Dunham Radiator Traps were the first thermostatic disc traps. After 20 years of unparalleled service they are still the last word in radiator trap efficiency. To the heating contractor who has experienced the annoyances of other types we recommend the Dunham Trap as a certain means to personal satisfaction and better pleased customers.

The Dunham Radiator Trap automatically releases all air and condensate and retains the steam within the radiator. Its construction is simplicity itself. Write for detailed technical information to-day.

C. A. DUNHAM COMPANY, LTD.

Toronto - Ontario

Halifax, Vancouver, Winnipeg, Ottawa, Montreal, Calgary.
London, Eng.: 18 St. Thomas St., S.E. 1.

The DUNHAM
REG. TRADE-MARK
HEATING SERVICE

(Made in Canada)

Jenkins Radiator Valves

--the most dependable

Satisfaction for you and for the man who pays the bill is assured when you install genuine Jenkins Radiator Valves. The Jenkins Diamond Mark, cast on the body, is the means of identifying genuine Jenkins Valves.

It signifies distinct valve superiority—a valve to furnish the maximum not merely the average service. Send for Catalog No. 9.



Fig. 490.

Jenkins Radiator Angle Valve (Screwed). Fibre Composition Wheel, Male Union Type Fig. 491.

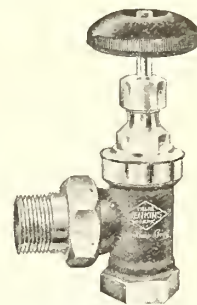


Fig. 494.

Jenkins Radiator Valve for Hot Water Heating System. (Male union). Screwed type Fig. 493.

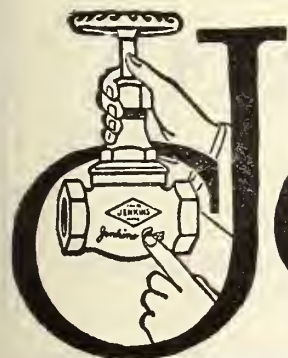
JENKINS BROS. LIMITED

Head Office and Works: 103 St. Remi St., Montreal.

Sales Office: Toronto, Vancouver.

European Branch: 6 Great Queen St., Kingsway, London, W.C. 2, Eng.

Factories at: Montreal, Bridgeport, Elizabeth.

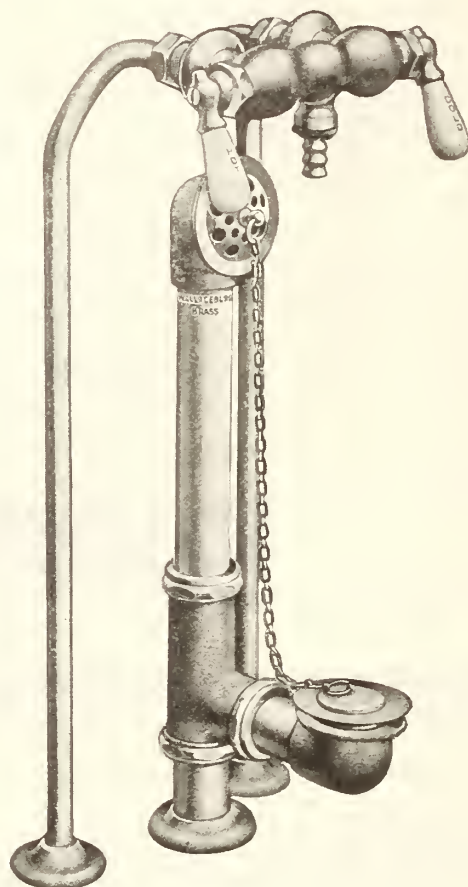


Always marked with the "Diamond"

Jenkins Valves

SINCE 1864

Standard Bath Fixture



This **combination of Bath Fixture** is unequalled for simplicity of design, compactness, speed in action.

The **Bath Cock** is our A-3500 Quatern Side Handle high grade fixture—**Equalled by none.**

The **Waste and Overflow**—No. 4350—is $1\frac{3}{8}$ " O. D., over-size relief, **adjustable horizontally and vertically.**

The **Offset Supply Pipes**—No. 4493—are full $\frac{3}{8}$ " I. P. size and thickness, **one piece uniform surface floor to Bath Cock Shank.** Easy to install. Easy to clean, and Cost less.

Proven goods at modern prices — Ask your jobber

THE

WALLACEBURG BRASS & IRON MFG. CO.

LIMITED

WALLACEBURG, ONT.

TORONTO:

Mr. L. N. Vanstone, 10 Wellington St. E.
Telephone: Main 2355

MONTREAL:

G. M. Price, 10 Victoria St.
Telephone: Uptown 945

WINNIPEG:

Moncrieff & Endress, Ltd., 80 Lombard St.
Telephone: A 9135

SANITARY ENGINEER

PLUMBER AND STEAMFITTER OF CANADA

ESTABLISHED 1907

PUBLISHED TWICE MONTHLY

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No. 9

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The MacLean Publishing Company, Ltd.

JOHN BAYNE MACLEAN, *President.*H. T. HUNTER, *Vice-President.*H. V. TYRRELL, *General Manager.*

Publishers of Sanitary Engineer, Hardware and Metal, The Financial Post, MacLean's Magazine, Canadian Grocer, Dry Goods Review, Men's Wear Review, Canadian Printer and Publisher, Bookseller and Stationer, Canadian Machinery and Manufacturing News, Power House, Canadian Foundryman, Canadian Shipping and Marine Engineering News, Canadian Automotive Trade Journal, Druggists' Weekly.

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Published on the First and Fifteenth of Each Month

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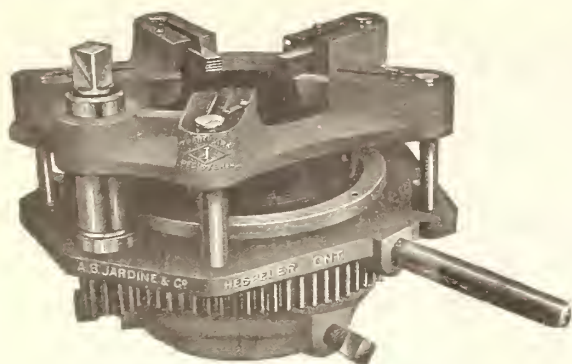
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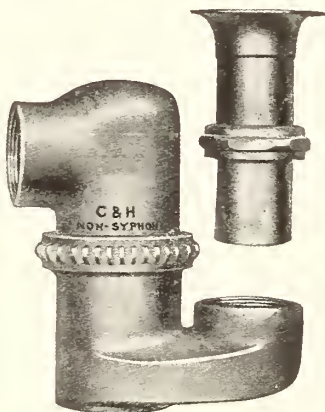
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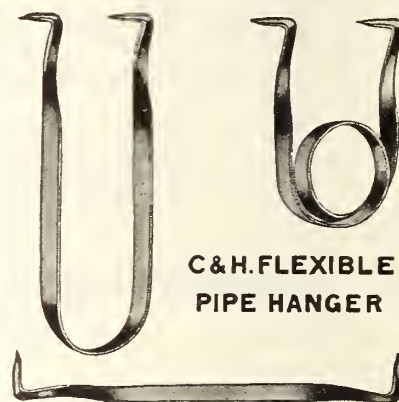
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Vol. XVII

TORONTO, MAY 1, 1923

No. 9

Outlines Big Growth in Rural Sanitation Throughout Canada

Only 200 Septic Tank Syphons in Canada From 1914 to 1917
Whereas 1,000 Installed in Ontario in One Year Now—Problems
of the Septic Tank in Rural Districts Near Cities and in Villages
and Towns

MAJOR L. L. ANTHERS, Managing Director Anthes Foundry Co., Ltd., Toronto, spoke on the subject of Rural Sanitation at the last meeting of the York Township Master Plumbers' Association and answered many enquiries on this subject which were raised by the various members. He addressed the meeting as follows:

"Canada covers a very large area and unfortunately the population per square mile is small. In this area we have every conceivable formation, including rivers, mountains, clay belts, etc. In United States the physical conditions are very similar to the southern belt of Canada but when you get one hundred miles north of here you get an entirely different country where the difficulties become more involved. There the engineers have very great problems, particularly regarding water supply. These areas will fill up in time but for some little time they will not be able to lay out the big trunk systems such as we know. Water supply is a big problem and the question of sewage disposal is also a very great problem. Take the town of Cochrane. There are now 600 out of a population of 2,700 suffering from typhoid fever. They followed the line of least resistance thinking the filtration of raw sewage through the soil would not affect the drinking water, but it has done so.

Farmer Slow to Move

"When we talk of rural sanitation one thinks of the farmer, but the farmer is very slow to move. Some have money but many of them have not, and it is hard to get money from the farmer. It is largely a matter of education. The same condition applies to small towns, of populations of from 1,500 to 2,000.

"I have a letter from a farmer in Vegreville, Alta., which shows how big this problem is. He says there are 1,700 people in the town and there are 44 water connections, of which five are large buildings. The sewage is deposited in a creek, causing great annoyance. He asks if it would be possible to put in one or two septic tanks to take care of the sewage.

"When we went into this problem of rural sewage disposal just after the war, I tried to establish how we could stimulate sanitation in these districts. I came to the conclusion that the septic tank was probably the best solution. There is nothing new about it. The syphon was invented long before its time but the people were not educated to the advantages of the system. It was hard to convince people that the sun, air, etc., had a lot to do with the action on the effluent of septic tanks. Many engineers said it was dangerous to have the effluent

taken care of by superficial disposal. In this connection I would point out that we are all aware that in the evening people turn gallons of water on the lawn and it absorbs all of it. The same thing applies to sewage disposal. Much of the moisture is dried by the sun and wind. If it was taken far below the surface this action would not take place. In cess-pools the water becomes contaminated because there are not the proper natural conditions and it becomes clogged and the liquid seeps through the lower soil.

Handle Through Jobbers

"We want to see sanitation taken seriously because we have tried many ways to put these ideas across. We have had many enquiries over a period of years but many of them we have been forced to handle through jobbers and they were not interested enough to go fully into the subject.

"We have a by-law in the city of Toronto saying that fixtures have to be installed, but in the rural communities you have not a salesman like this by-law to work for you."

At this stage Major Anthes endorsed the movement of the members to co-operate with the Ontario Society, pointing out that the plumbing trade is highly competitive and that many master plumbers do not know their costs of doing business.

Returning to his subject Major Anthes continued, "Another big difficulty is that plumbers do not think the laying out of the disposal fields is within the plumbers' sphere. Most of this work is done by drain contractors. You in the township have city people building rural homes and wanting city conveniences. This question is solved for you in such cases, but in the villages they have not got this stimulus and it is hard to put the propaganda over in such places.

Growth of Rural Sanitation

"As an indication of the growth of rural sanitation I would point out that from 1914 to 1917 there were only 200 syphons in Canada compared with the recent installation of 1,000 syphons in Ontario in one year. There is no reason why every rural community should not have such facilities."

Referring to the importance of the trade reading trade journals, Major Anthes stated: "I believe an honest effort is being made by many of such journals to put across to the trade the very latest ideas in sanitation. Read your trade journals because a number of authorities are, through that medium, spending much time to assist you in your work. There is much sound sense in these papers and they are doing all they can to improve trade.

"The manufacturers are also doing all they can to give

service and good quality goods, and if we don't give this we want to hear your kicks. If you get pipe with a thin side the manufacturer wants to know about it. Or if you get pipe with sand holes in it let the manufacturer know. We should try and get the manufacturers and wholesalers into an organization too, and try to help things along by co-operation."

Splendid Work

Major Anthes referred in complimentary terms to the splendid work done by the Ontario Agricultural College in furthering the idea of rural sanitation among the farmers, and suggested that plumbers link up definitely with such effort.

In answer to a request by H. W. Rushby for assistance in framing township



MAJOR L. L. ANTHERS

Managing Director Anthes Foundry Co., Ltd., Toronto, whose address on Rural Sanitation and answers to plumbers' problems, as outlined herewith, contain many helpful pointers.

regulations governing septic tanks, Major Anthes promised to give what help was possible and pointed out in recommending this principle that it had had much success in Britain where they had had long experience.

"There is much difference between raw sewage and effluent," he continued, "and there is no need to take out a septic tank where you put in trunk sewers. You then have effluent instead of raw sewage going into the sewers, involving less work on the central disposal system. The syphon chamber of the septic tank can be connected up with the sewers and this saves the use of expensive equipment for the handling of raw sewage.

"Septic tanks will not discharge until the water in them reaches a certain level and then it goes with a rush. That rush will provide good flushing for the sewers."

Case of Wingham, Ont.

Major Anthes continued on this point by showing that in Wingham, Ont., fungus growths obstructed the sewers be-

cause they did not get sufficient flushing. It was found that a large syphon installed at certain sections on the sewers, and a tank at the end of the mains keeps the sewers clean by constant flushing.

Some question was raised by one of the members concerning the operation of septic tanks in the winter. Major Anthes replied that trouble is sometimes caused by the tank being too cold. It was said to be wise to see that the system was well warmed up before being put into operation. This could be done by pouring heated water into the tank chamber. Putting a few cakes of yeast in warm water into the tank was recommended as a means of aiding fermentation. Sometimes manure placed along the main trunk line of the system helped, preventing freezing in extremely cold climates. It was pointed out that the effluent is really not water and that it will not freeze nearly as readily as will water, due to chemical action.

Another question was, "Where is the

best location for the tank with relation to the house?" Major Anthes answered, "There is no reason why the tank should not be placed right next the foundation of the house, but don't make the foundation wall of the house a wall of the septic tank. The disposal field can be placed twenty to fifty feet away from the house, and should be located in the opposite direction to a well."

WRITE, TELEPHONE OR CALL

There are many ways in which to get business, and all the ways are good ways. But some are better than others. The best way is to employ all of them, by doing this you are on the sure and safe road.

The other day a successful business man said, "If I want 20 per cent. of the business I ought to get, I write; If I want 30 per cent. I telephone; but if I want 100 per cent., I write, telephone, advertise and then go and see my prospect." That is the sure way.

York Plumbers Discuss Joining With Ontario Society

Labor Bureau to be Established for Convenience of Members—Will Give Good Send-Off to New Plumbing Inspector for the Township

AT THE last regular meeting of the York Township Master Plumbers' Association a number of current developments in the township were dealt with. The resignation of Chief Inspector Hughes and efforts being made to make a new appointment, came in for some consideration. It was felt that Mr. Hughes had had the support of the members of the plumbers' association despite reports to the contrary. President McDonald, who presided, had been of the opinion that Mr. Hughes had been making good progress with his work.

H. W. Rushby pointed out that the association's Credit Bureau was now functioning and suggested the formation of a Labor Bureau. He stated that there were not too many journeymen in the city but they were ill divided. An employing plumber might need a man for a short time only and should have facili-

ties for securing him. Mr. Sleep agreed to act as director of the Labor Bureau, devoting an hour at mid-day to getting a record of available men and meeting the requirements of members.

Mr. Rushby brought to the attention of the meeting the forthcoming convention of the Ontario Society on May 10 and 11 and suggested that steps be taken to be represented at that convention. It was decided to hold the next meeting of the association during the week of the Ontario convention and to have a speaker from the latter association to address the members on the advantages of affiliation with the provincial body.

Major L. L. Anthes, Managing Director, Anthes Foundry Co., Toronto, was the chief speaker of the evening and addressed the gathering as outlined elsewhere.

"Sanitary Engineer" in Port Arthur and Fort William

EXPRESSIONS of satisfaction have already been received by SANITARY ENGINEER from a number of sanitary and heating engineers in the twin cities of Port Arthur and Fort William over the appointment of a special representative who will work in close co-operation with the craft in those cities.

Theodore B. Allen, well-known locally, will serve the craft in those cities in connection with the various services of SANITARY ENGINEER and there is no doubt the co-operation of the craft with Mr. Allen will be very beneficial.

Ontario Government Sends Out Lecturer With Demonstration Truck

Bathroom Fixtures, Kitchen Sink With Running Water, Pneumatic Water System, Hand and Power Driven, All Fixtures in Full Operation—The Women's Institute of Ontario Will Arrange Complete Course of Lectures

Written specially for Sanitary Engineer by EDWIN NEWSOME, Consulting Sanitary and Heating Engineer.

TO CONVINCE, and to show rural residents, farmers, and farmers' wives that sanitation in the home is very necessary, is going to be the objective of lecturers during the coming summer months. The Women's Institute of Ontario has arranged to have practical lectures conducted throughout Ontario, and a fully equipped truck will be used.

The truck has a division wall down the middle to represent on one side the wall of a bathroom and the other side of the wall will play the part of a portion of a kitchen wall. The body of the truck will be 9 feet long, and 6 feet wide. On the sides will be hinged a wing or swinging side, which can be fixed so as to add floor space to both the kitchen and the bathroom.

This will give a floor space of a little over 11 feet. Two sets of steps will be fitted to each side to enable those attending the lectures to thoroughly examine and inspect the goods.

The piping will all be concealed in the

wall, which will be 9 feet long and 6 feet high and painted or otherwise finished, one side to represent a tiled bathroom wall, the other side to look like a well finished kitchen wall. The material will all be real. No models excepting a working model septic tank, will be used.

The water closet will be set up and provided with water, and in connection with all the fixtures a large tank will be placed on the ground under the truck to receive water from the various fixtures as they are demonstrated. The same applies to the taps on the sink, bathtub and wash basin.

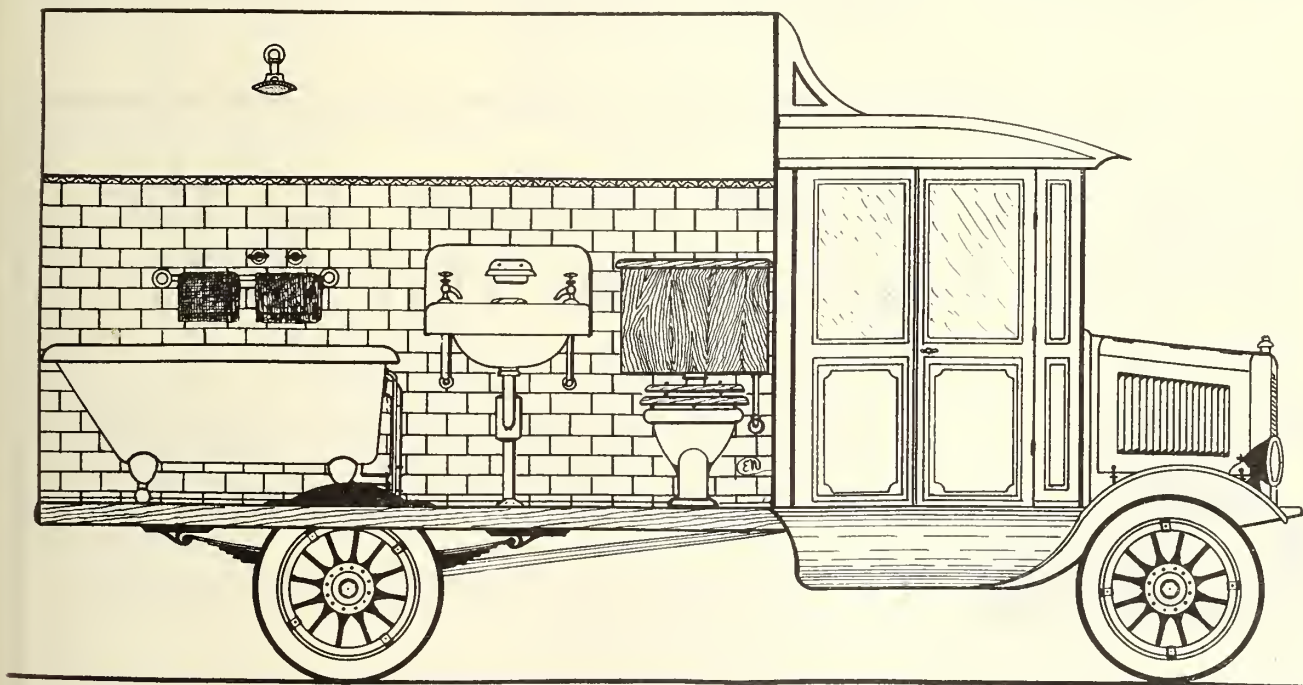
A full sized 250-gallon per hour electrically driven pneumatic water pressure system will furnish water to the fixtures, and a range boiler will form part of the outfit. An electric washer and an electric vacuum cleaner are included in the equipment. So as to be able to properly explain the advantages of the various fixtures in localities where there is no electric current available, a hand-driven pneumatic pump will be fixed up

in such a way as to make use of the large pressure tank. As a matter of fact every possible detail has been worked out that will not only be of interest to those attending the lectures, but make the lectures as practical and valuable as possible.

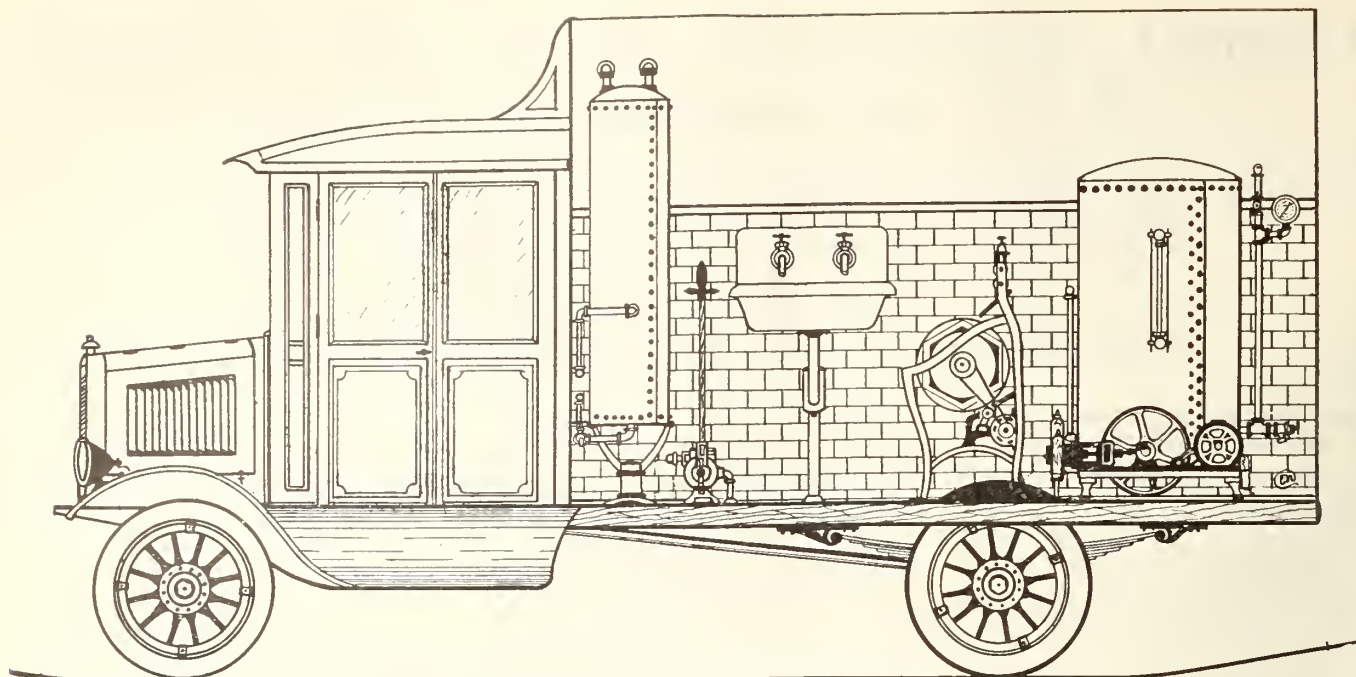
The lectures will be given all over the province, particularly where there is electric current and good roads, so that as large a portion of the time as possible will be devoted to demonstrative work and lecturing and as little time spent as possible in travelling. A complete list of places and regular route is being arranged, and many of the country and small town fairs are very likely to be visited.

There will be a lighting system of some kind furnished so that evening lectures can be conducted. Blackboard sketches and discussions will form part of an educational campaign such as has never before been conducted in Canada, or in fact, on this big continent.

The officials of the Women's Institute



Fittings on the truck to be used in connection with the lecture tour outlined in this article are illustrated herewith. It shows a bathroom with all fixtures and small bathroom accessories in place.



Portion of modern kitchen with fixtures working and all normal size on the truck to be used.

will endeavor to have these lectures conducted on premises where ample water is available. A flexible hose will be dropped down into the well, the pump put into operation and then when the pressure tank is filled up to an operating level, it will be so fitted as to work automatically. As the fixtures will waste into the small tank referred to, situated under the truck, the suction pipe will pump any further supply from it into the pressure tank again.

The lecturer will give blackboard talks and answer questions put to him

by his audience. When possible he will conduct lantern lectures, showing every phase of his subjects which will in the main comprise sanitation on the farm; the principle of water supply systems, and how they operate; the possible troubles; ordinary every-day ailments or possible troubles in a plumbing system, and remedies; how to install a proper sanitary sewage disposal system; the why and wherefore of one, and the dangers of having a cesspool. Last, but by no means least, the probable cost in dollars

and cents and the value to life and health of a sewage disposal system.

A Word to Sanitary Engineers

Now for a few words to the plumbing trade. This work being conducted by the Agricultural Department should prove of inestimable value to the whole industry. There never was such a campaign conducted that will be of such value to one industry as this is going to be to the plumbing and heating trade. Every one connected with this move-

(Continued on page 38)

Bring the Other Fellow to the Ontario Convention May 10-11



days' reunion will be enjoyed by all attending the convention.

AS BRIEFLY announced in the last issue of Sanitary Engineer the 12th annual convention of the Ontario Society Domestic Sanitary and Heating Engineers will be held in Toronto on Thursday and Friday, May 10 and 11. Sessions will be held in the Foresters' Building, College Street, Toronto.

Preliminary plans for the convention being made by Secretary Garrett Frankland indicate that a helpful and sociable two

Make your plans now to attend. There is greater need for co-operation to-day than ever before and every sanitary and heating engineer owes it to himself to benefit as much as possible from these get together sessions.

Patterns for Automobile Fender

Written for Sanitary Engineer by O. W. Kothe, Principal, St. Louis Technical Institute, St. Louis, Missouri

AUTOMOBILE sheet metal is just giving another slam too much to the other sheet metal work with which we are so familiar.

There are a great many workmen who let some of the beautiful curves and high polish of the modern sheet steel buggy mystify them.

In reality, they are very simple and after a period of study a person is surprised at the extremely few designs that require complicated laying out.

In this drawing we have a fender that has a splash guard, a mud filler, and a visor or lip attached.

From the front elevation, we see the general outline of fender, and the side view shows us the curvature of the top and the shape of the splash guard, while the front elevation shows the mud filler section.

Now the top fender is just merely a flat strip of metal with a bead run around.

Divide the top line of side elevation as 1-8 in any number of equal parts and project them into the front elevation.

Then pick this girth from side elevation and set it off on a line A-B.

Draw stretchout lines and then from the center line A-B of front elevation, pick the widths and set them off on this line in pattern.

This gives the widths and curvature as shown.

This process is also continued for the mud filler guard by dividing the section in front elevation in any number of equal parts and projecting those lines into side elevation.

Then pick the spaces as 8-14 and set them off in pattern from 8-14 on line A-B. After this pick the widths from front elevation and set them in pattern, which permits drawing the outline for pattern as shown.

To set out the splash guard, pick the girth from front elevation as a-7"-6"-5", etc., and set off on a line as a-y below side elevation as shown.

Draw stretchout lines through these points and then from each point in elevation drop lines until they cross those in stretchout of similar number.

This enables tracing the outline for the miters of pattern.

The mud filler is set out in the same way by picking the girth from the section as a-b-9-10-11, etc., of front elevation and set off below side elevation as a-14.

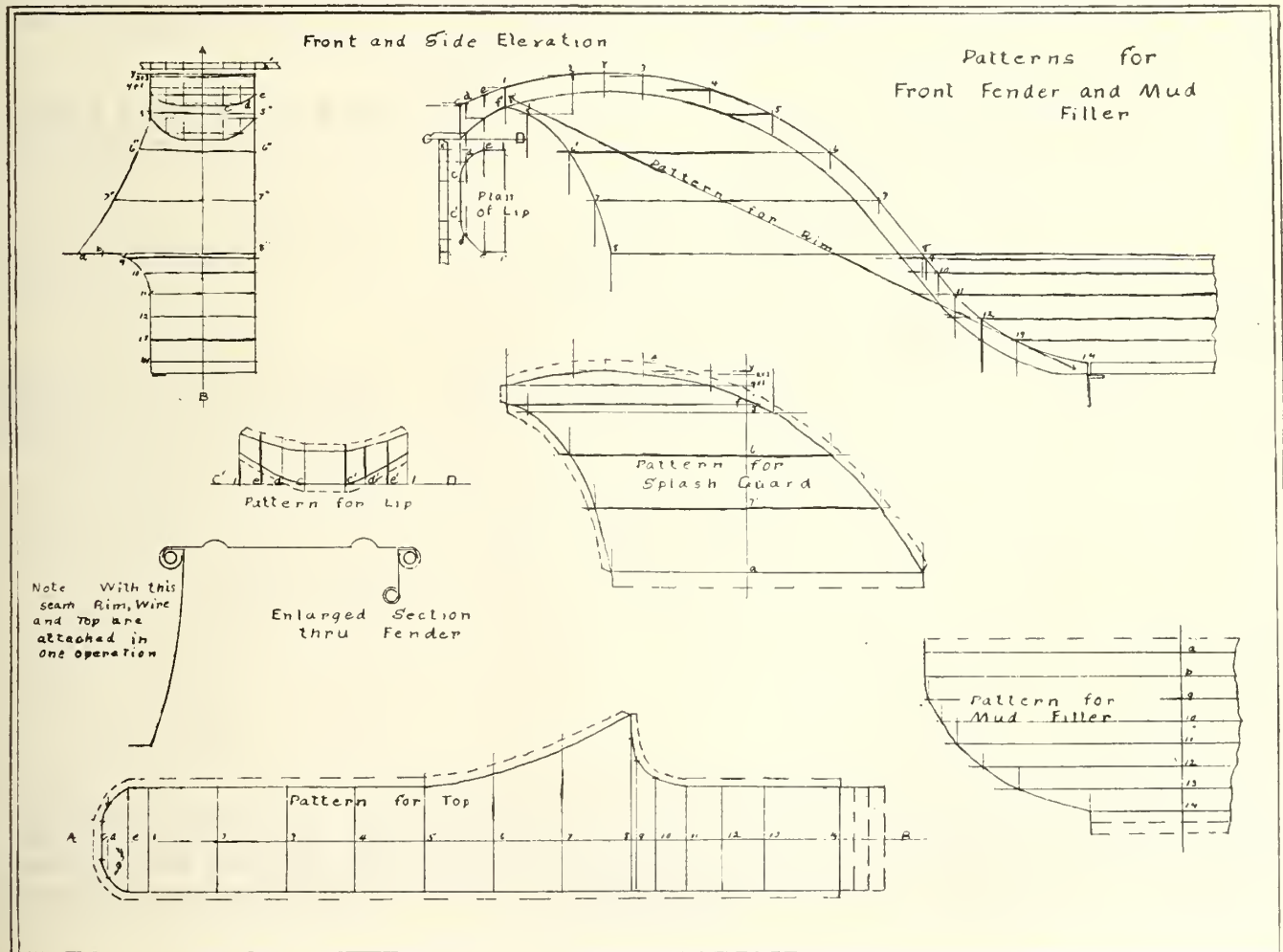
Draw stretchout lines through these points and then from each point in elevation as 8-9-10, etc., drop lines to cross those of stretchout of similar number. Sketch a line through these intersections and the pattern is finished.

To set out the lip the parallel line method can be used by placing a plan of the lip below side elevation and dividing the curves in equal spaces and running up the points into the elevation.

From each of these points in elevation project lines over into front elevation.

Then, by means of a paper strip x, pick the spread of spaces and set it as in paper strip x' and drop lines into those that were projected from side

(Continued on page 29)





The splendid bright showroom of A. R. Wilson, Ltd., Sherbrooke, Que., showing kitchen, laundry and bathroom equipment well arranged, and showing some rural equipment in the centre. Pipeless furnaces, etc., are shown toward the rear and the office is at the back. A model bathroom is shown in the enclosure. This firm have found the use of a showroom to be a big stimulus to business.

appear in any home, and with a flower pot on each corner post makes a very attractive display. The chief feature of the whole showing is keeping it spotlessly clean. From the front window to the rear the wood-work and floors are varnished and polished and the fixtures are dusted each morning.

After Farm Trade

Not only is it the intention to attract the townspeople, but it is expected that rural trade will become more and more interested in the showing of wares of this nature. Speaking of developing this class of business Mr. Wilson said that up to the present very few bathroom or kitchen outfits had been sold in their locality, but there were indications that more would be sold to farmers in future. They were planning on entering a campaign for this trade, and intended shortly to advertise in the local paper along these lines. They were also seriously considering fitting up another automobile truck with fixtures to call on bright prospects along the country roads.

"Farmers are buying cars, and we think that if they can be shown the advantages of running water in their homes and barns, a modern bathroom and kitchen, they can be induced to buy.

Some of them should be persuaded to modernize their homes rather than putting their money in automobiles for pleasure outside the home. The thing for us to do is to show them that even more pleasure and convenience can be given by installations of our wares than by the purchase of a car which only gives pleasure during certain months of the year. A certain percentage of farmers are able to afford both, and many of these are good prospects for us, as few of them have modern household conveniences. However, farmers

and their wives will not come to us about this matter and it is up to us to go to them."

Keeping Track of Goods Used by Workmen

A rather unique accounting system was described to Sanitary Engineer by Mr. Wilson. They adopted the system some few months ago and find that it works to great advantage in the carrying on of their business. It at least eliminates to a great extent leakages through material being used on jobs by the men in the shop without any proper check.

When the order is received in the office a numbered order blank is made out giving every particular of the work to be done, the name of the party, his address, and by whom ordered. This is handed to the foreman who assigns the job to one of the workmen, enters the workman's name on the order blank, and the name of the helper also sent. Each man in the shop carries a pad of blank "material wanted" slips, and on this he enters the material he will require, or has used, after he has looked over the job, or completed it. On this slip is a number corresponding with the number of the order received from the

A. R. WILSON Ltd.

Job No..... Date.....

MATERIAL WANTED

Head of the slip 3½ in. wide by 5½ in. deep covering Material Wanted as outlined in the article. It is numbered to correspond with the Workman's Return Slip.

(Continued on page 38)

This is the Age of Gas—Why?

Waste, in No Matter What Form, Helps to Swell Cost of Doing Business—Gas is Wasted, Coal is Wasted, Time is Wasted—Sanitary Engineers Can Help Reduce Cost of Living and Make Money by So Doing

Written specially for Sanitary Engineer by EDWIN NEWSOME, Consulting Sanitary and Heating Engineer.

Say, Fellows!

IN CHAPTER I, I told you a little about the history of gas. I'm going to give you a little bit more, and with it I'm going to tell you what some of our fellow craftsmen over the line are doing. But before I do let me tell you a "bit crack" as the Scotchman calls a story, about some of my own experience with gas. And mind you, what my experience was can be yours if you so wish it.

Away up in Scotland, in a little town not far from Glasgow, I had a little job on to put a couple of gas stoves into a couple of houses. The Glasgow Gas Co. used to loan out stoves in those days for so much a month and if I remember right the more gas you used the less you paid for the loan of the stove.

However, I put in those two stoves and next door to one of the houses lived a hard working couple and the wife was the mother of a lot of little "nippers" and she dropped into the next door to see the new gas stove. Well, it fairly made me sad to see the longing eyes of that "poor body" look over that stove. And she says, "My, my, but wad I no' like to be the owner o' yen a they stoves?" She said she had an old "Bonnybridge" and the inside of were like the inside of the new stove. So out of sympathy I went in to look over the "Bonny-

bridge" and I found it to be very like our Canadian coal ranges.

So I took a bit of 3-8 in. pipe, drilled it full of small holes, bent it, put a bunsen to it, made a couple of holes in the top of the oven door, and the poor soul had a gas oven for practically a few cents.

Now why have I told you this story? Because that job got me one of the biggest plumbing jobs I ever did. That poor woman began to boast about what "Newsome" had done for her, and a lady for whom she worked wanted an "Honest plumber," etc., etc.

But listen, there's another reason why I am writing these gas articles. It is because I can see some big business for my fellow-craftsmen in the gas business. If you men had the chance to follow the development of the gas industry, you'd be astounded. You read in Chapter I how gas used to cost over \$15.00 a thousand and despite that fact, there is more gas sold to-day per capita than ever in the history of civilization. And you, my fellow-worker, can get the business of installing thousands of feet of pipe if you will only go the right way about it, and then, what is more, you can sell the gas appliances. Just read on and let's see how, and what other fellows are doing along this line.

THE concluding paragraphs in the previous chapter under the above heading dealt with the heating power of gas and other forms of fuel, and statements were made to the effect that at no far distant date, all fuels would be classified and consumed in our heating furnaces in some form of gas. This statement and many more cannot be refuted, at least by those men whose "ear is to the ground."

But, when this day comes, and it is coming, there is another problem we men must not overlook, that of conservation of fuel, (gas). This spirit of conservation is in need of much cultivation. Conservation is a twin sister to co-operation, while competition, the most pernicious of all systems, is the enemy of man and has been ever since the days of the pre-historic cave man, when he fought for his meat like the beast of the jungle. Competition creates waste; competition as at present practised is the death of trade. And it is this waste, only in another form than competition, that we must eliminate.

Take for example the heat loss from even an ordinary gas water heater, and a range boiler. I had an experience in

Ottawa some years ago which proves my point. We had a little tot, just beginning to walk. She tried to rise to her feet by clinging to the gas water heater, which was in the kitchen, and her little fingers got burned. I made a covering of Johns-Manville air-cell asbestos, both for the heater and the range boiler. Previous to that, my monthly gas bill amounted to about six dollars. out after that my bill dropped down to the neighborhood of \$4.25 to \$4.50, thus making a saving of at least \$18.00 a year. Now what is \$18.00 per year? It is a sum of money that would pay the interest on a loan of \$300.00 at 6 per cent. for one year, which means that one could afford to invest that amount of money and get by saving, 6 per cent. on the investment. It is just that kind of reasoning which results in millions of dollars being invested in huge enterprises.

We find that in England a great deal of research work is being conducted along these lines by the British Government, because, if there is one movement more than another that will wipe out the war debt of the British people it is conservation. The following extract—

taken from a report by Mr. Newton Booth of the Woolwich Arsenal and read before a body of heating engineers—will give our readers an idea of what can be accomplished by insulation of heat, or in other words, retaining all the heat units for the actual purpose for which such heat is needed.

Mr. Booth estimated that approximately 3 B.t.u. per sq. ft. of exposed surface was lost to the surrounding quiescent air per degree difference in temperature. More accurately this is the loss at 250 deg. Fahr. temperature of the surface; at 100 deg. it would be about 2.2 B.t.u. and at 500 deg. about 5 B.t.u. Moisture and rapid air circulation would increase these figures very much. The effectiveness of insulation depends upon the volume of air confined in minute spaces and often varies inversely with the weight per cubic foot. Thus cork, wood sawdust, porous bricks, wool, felt, asbestos, diatomaceous earth, etc., are considered good insulators. Air weighs 0.0081 lb. per cu. ft.; slag wool weighs 15 lb. per cu. ft., porous bricks 28 lb. and firebrick 120 lb.

The author said that one of the latest insulators was magnesia carbonate mix-

ed with 15 per cent. of asbestos fibre and some adhesive substance. Taking the conductivity of air as 0.000055 (c.g.s.) that of 85 per cent. plastic magnesia would be 0.00017 or about one-third the insulating effect. Comparing this with a conductivity of 0.002 for firebrick gives an idea of its relative value as an insulator. He added that the high cost of gas fuel "will show the importance of proper lagging of such gas-consuming appliances as cookers, laundry water heaters and water-heating installations in general, if consumers' interests are to be studied and we are to meet the competition of other forms of heat supply." It is important that water be kept out of such insulation. The price of this plastic magnesia was 1s 3d. (about 29 cents) per sq. ft., although the loss from a bare steam pipe per year would be three times this amount. An air jacket for an appliance like a gas oven was not much benefit in comparison with proper insulation.

Some may argue that the heat lost between useful heating operations, or that going out with the waste gases were more important than insulation which may be justified, but those problems are not so simply nor permanently solved. If 10 per cent. of the heat generated is lost by radiation and half of this can be saved by insulation, it means less gas or other fuel will be needed for heating and more uniform inside temperature. Mr. Booth took up a subject in which we all should be interested, especially in its application to steam or water pipes in apparatus fired by gas.

Now, let the sanitary heating engineers of Canada take more interest in the conservation of fuel; let them take a greater interest in gas appliance sales and the service such appliances will render, and the public will no doubt begin to have a greater degree of confidence in our craft. It is this lack of public interest, lack of true salesmanship, which keeps us from securing the confidence so very necessary to our own as well as the public's welfare.

For instance, when a new gas appliance or any other appliance such as we sanitary engineers instal, is put on the market, we should conduct searching inquiries about it and let the public know that we are doing so. We know full well that steel pipe for years has been used as waste pipe in certain systems of plumbing. What did the plumbing trade do to put a ban on its use? Nothing. When the Fuller tap came into being the public paid the price and the trade got the black eye. The patent waste and overflow is another fool idea, unsanitary from every viewpoint. But sanitary engineers have done nothing. Why? That's a question.

But here we are, with an opportunity to let the public know something about true conservation and the use of gas appliances and what is more we could get all the sales if we went the right way about it.

Nearly every plumber or sanitary engineer in Canada is on bad terms with his local gas company, and why? Be-

Says Spring Number Was Very Live Issue

Sanitary Engineer, Toronto.

We are to-day in receipt of our copy of your April 1 issue. We wish to offer our congratulations upon this number and can frankly say it is the liveliest issue of your publication that it has been our pleasure to see for some time.

We were particularly interested in the announcement regarding the Trade Extension Bureau service which you are instituting. We feel this is a service which has been greatly needed by the trade in times past and know that it will be of far greater benefit to the plumbing industry than any other step which has been introduced for quite some time. We are quite familiar with the workings of this bureau and if there is anything we can do or any way in which we can help this work you can count on our support.

Wishing you every measure of success,

H. Mueller Mfg. Co., Ltd., Sarnia, Ont.

(Signed, O. G. McMann, Advertising Manager)

cause he, in the first place, just neglected the possible sales of gas appliances, and thus the local gas company lost gas business. The gas company is only doing what the tobacconist does when he sells tobacco and pipes. If the tobacconist had to depend upon some other merchant to sell pipes, the tobacco sales would all be cigars.

Six Years or so Ago

Much has been said and written about the way sanitary engineers and gas companies conduct themselves with relation to each other's business. I know of quite a number of Canadian towns and cities where gas, both natural and artificial, is available. Yet in those very towns I have found that the plumber has gone out of his way to oppose the gas company and taken up the sale of electric goods.

A few years ago it was my privilege to condemn the electric steam radiator, a contrivance which, with just a little of the usual fake boosting, would have come to stay as a unit in connection with heating systems, but as electricity is fundamentally a power energy, and unsuited for heating, all such propositions are sooner or later found to fail. But we as sanitary and heating engineers, should be the forerunners in honest criticism of such fakes.

Gas as a fuel and lighting element was almost the very foundation of our business in its early days, and now to-day, what do we find? Across the line the sanitary and heating engineers are actually working hand in hand with gas companies.

In Portland, Maine, an educational association has been formed known as "The Gas Institute." Master plumbers, architects and gas company men are eligible for membership.

The gas company there realized that it was not getting the co-operation of the plumber because the plumber was getting nothing out of the sale of gas appliances and the piping business.

The contending parties got together

and educational meetings were held from time to time with the result that to-day plumbers are getting this kind of business, and architects, plumbers and gas companies are "a happy family" in Portland.

At a meeting held in Boston a couple of months ago, master plumbers from all over the United States were in attendance under the auspices of the New England Gas Sales Association, and several were asked to take part in the discussions.

Jas. Cassidy, past president of the National Association of Master Plumbers, remarked that the spirit of true co-operation between gas companies and the plumbing trade was really splendid. He stated that the success of the whole movement of co-operation between gas companies and the plumbers was largely due to the efforts of Mr. E. S. Stack, of Stack gas water heater fame. Mr. Cassidy said:

"There is altogether too much unworthy prejudice existing between gas companies and plumbers. You cannot work with a man or an industry you don't like. But it is very encouraging to note the change that is taking place, and the improved attitude in general, one toward another, in several of the States." He quoted Mr. Archie Maddox as having expressed the opinion that plumbers all over the U. S. A. would soon be selling most of the gas appliances, and if that was so, the 10,000 members of the National Association of Master Plumbers would fall in line and become salesmen for the various gas companies.

At the same meeting Governor Woodhead referred to the fact that in 1921 the plumbers in Arlington formed a committee of eight, (five plumbers and three gas men), to see if some plan could not be agreed upon whereby the bad feeling and lack of co-operation could be overcome. To-day there are no serious disagreements and to prove the good feeling now existing he stated that

(Continued on page 38)

Advertising Suggestions for May

HOW TO ORDER

advertising material

Advertisements in each issue will form a complete month to month advertising campaign for your use.

These are only a few of the electros available in this service. Complete catalog of all illustrations available to date will be mailed on request.

The catalog gives serial numbers on each illustration and the price is quoted. Prices range from 30 cents to \$1.00 for electros according to size.

In ordering from catalog write plainly the serial number of the illustration and send remittance to cover the order in order to save cost by avoiding book-keeping expense.



WHEN a (.....) Farm Water System is unloaded at your door, it means the end of useless waste of time and labor.

The greatest advantage city residents enjoy is running water!

With the (.....) Farm Water System on your farm, no city dweller has any better water supply.

Running water in the farmer's kitchen, for cooking, washing, drinking; running water to fill the troughs, and for every need on the farm!

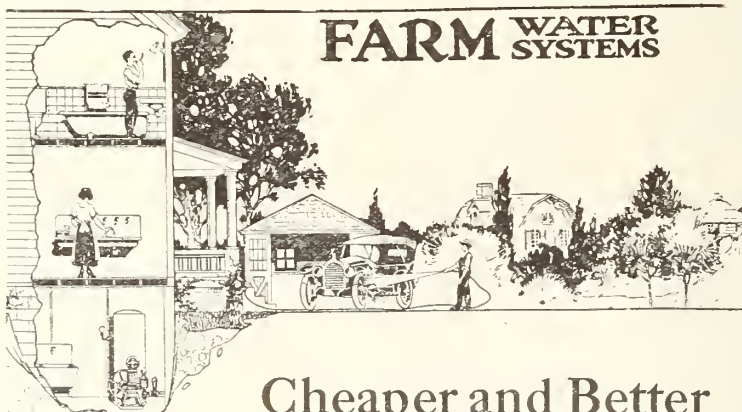
Water—under sufficient pressure—for protecting your property against fire!

Water—in any quantity—fresh, cool and clean! That's what it means to you!

For deep or shallow wells, there's a (.....) Farm Water System here for you. (Time payment if you want it.)

YOUR NAME HERE

Phone No. Address



Cheaper and Better Than an Extra Hired Man

Figure it out for yourself: somebody must pump and carry every drop of water you use, at great loss of time and labor.

By stopping this loss you can do with one less hired hand—or gain an equal increase in productive work.

Running water on the farm will pay its cost, many times over, by merely saving time! Then, there's the protection of humans and livestock against disease.

A (.....) Farm Water System, for either deep or shallow well, is a paying investment.

(YOUR NAME HERE)

Phone No.

Address



Have Your Repairs Done Right!

When your plumbing needs repairs, call a responsible, trustworthy Plumbing Dealer.

There's no certainty that a "handy man" can make proper repairs to plumbing; and finding out whether he can or not is always at your expense.

Call us when you want reliable repairs to your plumbing.

(YOUR NAME
HERE)

Phone No. Address

Have We Heard From You Yet?

Many requests have been received by SANITARY ENGINEER for catalogs of electros and other material available showing prices in this new service. These illustrations will be sold to you at cost, ranging from 30 cents to \$1.00, and they will help greatly to make your advertisements pull business.

Send NOW for complete catalog of illustrations and prices to

SANITARY ENGINEER,
143 University Ave.,
Toronto, Ont.

Effective Water Heater Window Displays



WINDOW Display No. 113 gives you a suggestion, of a very effective way of getting attention for the fact that you supply hot water service equipment, of a kind suited to every need.

In our window, the background is formed entirely by gray ramie cloth, draped in natural folds from ceiling to floor.

On one side of the window, a coal tank heater is shown, connected up to a range boiler; and on the other side of the window a gas tank heater is shown in a similar way. Between these two, in the center, toward the front of the window, an automatic gas water heater is shown.

The stiffness and flatness of the floor of the window is relieved by draping a few folds of ramie cloth, of contrasting shade, across the front and in the rear of the window, as photograph.

You may desire to show in your win-

dow, appliances different from those shown in this photograph. That should be very easily done, using this photograph as a suggestion for the grouping of your display.

Window Display No. 114 makes effective use of the modern kitchen sink, as a background for the display of an automatic water heater and combination range boiler and water heater.

This window is easily put together by constructing background and side walls suitable to represent the walls of a modern sanitary kitchen. In the center of the back wall place a modern kitchen sink, set at a proper height and equipped with faucets, etc., presenting it to view as if permanently in place.

At one side of the window, midway between the sink and the glass of the window, place your automatic gas water heater, and on the other side, your combination range boiler and water heater. The big central display card is placed

in the center of the window on an easel, a few inches in front of the front line of the sink. The whole idea of this window is expressed by the big display card. It will drive home to your public the thought that modern hot water service truly is, "As essential to the modern kitchen as a sanitary sink."

Here again, drapery of soft cloth is used to relieve the flatness of the floor.

The same idea can be made use of in your window to exhibit other forms of water heating equipment, in keeping with your own ideas as to what you wish to exhibit.

In this window is shown a ventilating device. This is in the nature of an adjustable panel fitted to suit the top of any window, and carrying a 16 inch ventilating fan which operates on ordinary household current. This device should prove to be a very satisfactory "cash and carry" side line for the plumbing dealer or heating contractor.

Sanitary Engineer

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No. 9

An Important Series

THE plan of the Ontario Government for conducting a series of lectures throughout various rural districts of the province during this summer, as outlined fully in this issue, is a very progressive step and one which should mean much to the sanitary and heating engineer. There are two ways in which the craft can cash in on this effort, viz., by attending the lectures personally where possible, and by following up the effort of these lectures upon those who attend them.

In selecting Edwin Newsome, contributing editor of *Sanitary Engineer*, to handle these lectures throughout the province, the government shows appreciation of the work which Mr. Newsome did in his series of lectures last fall, which were fully reported in *Sanitary Engineer*.

Mr. Newsome has laid full plans for the extended course of lectures this summer and full details of this campaign will appear in *Sanitary Engineer*, as well as complete reports after each lecture is completed.

A Very Serious Move

MRS. McNAUGHTON, who has been the promoter and leader of many movements to improve social conditions on the farms of Western Canada, gave some very interesting evidence at Ottawa a few days ago. In a survey of over three hundred farms in Manitoba she found that nearly 60 per cent. had no water laid to the kitchens and only about 10 per cent. had bathrooms. Twenty-five per cent. of the women did the chores of the farm.

It is idle to say that the grandparents of these women, the pioneers of the country, had to go to the well for their water, knew nothing of hospitals, and took their full share of the farm work. The forbears of the city housewives did not have electric light and power, bathrooms were rare, there were no movies, no telephones and grocery stores were a long distance away with no street cars to lighten the journey. The comparison that is fair and full of meaning is not between the prairie housewife and the women who faced the unknown in the prairie schooner, but between Mrs. Brown, who lives on the homestead fifty miles from a hospital in Northern Alberta, and her sister, Mrs. Smith, who resides in a comfortable, steam-heated flat in the town or city.

Judged by this standard, the farmer is getting the worst of the deal and in sheer desperation he and his brothers are abandoning their farms, not singly, but in battalions. It is the most serious thing that is happening in Canada to-day, and unless it is checked it will mock our schemes for immigration and sap the very springs of Confederation.

Come to Toronto May 10 and 11

THE 12th annual convention of the Ontario Society, Domestic Sanitary and Heating Engineers, is to be held in Toronto on May 10 and 11, as outlined elsewhere in this issue. Every sanitary and heating engineer in Ontario should make it a point to be present at this convention for there never was a time when the co-operation of the various members of the craft was as much needed as to-day. Problems beset this industry to-day as a result of the development which is taking place and these problems must be discussed. The trend of industry is taking many young men into other fields of work. They are not going to the "white collared" jobs exclusively by any means. This has been the cry for some years but lately wages in many mechanical lines of work have been such as to attract many of them to such work. It shows they are willing to tackle it if the prospects are sufficiently good.

This raised the apprenticeship problem and the need for some basis on which to work so that new men will be constantly coming along to fill the shoes of those who are constantly passing on or developing into employers. Should there be a big revival of building and plumbing and heating business boom as result, there would quite likely be a shortage of mechanics in this industry.

Progress is also being made in respect to improved by-laws governing installation and operation of sanitary equipment. Many new features have been introduced in by-laws recently adopted in various municipalities and there are points to be learned from a discussion of these. In all branches of the industry progress is being made and nowhere has the plumber or heating engineer any better opportunity of seeing it and feeling it than at a convention where he rubs shoulders with his fellow craftsmen from other parts. The influence of such exchange of ideas and social intercourse is broadening. Make a point to be in Toronto on May 10 and 11.

Better Hotel Convenience

VARIOUS movements are commenced from time to time which sanitary and heating engineers can turn to good advantage. These include such popular movements as the trend towards central heating, the efforts of the Ontario Government in rural districts, etc. Another one of these movements just noted is that concerning the improvement in hotel conditions throughout the province which is being urged by the Commercial Travellers Ass'n. of Canada.

This week a deputation of this association obtained a promise from Premier Drury and Hon. W. E. Raney of Ontario, that a bill based upon the recommendations of the Special Hotel Committee will be introduced in the Legislature immediately. This deputation represented 20,000 commercial travellers and its recommendations carried some weight. Members of the special committee pointed out that many people who did not travel around the province had no idea of the unsatisfactory conditions now prevailing in many hotels. It was agreed that given the improved hotel accommodation now proposed, the volume of tourist trade would be enormously increased. The Premier stated that he had travelled enough to appreciate that something should be done to provide clean, decent accommodation for homeless travellers, and a suitable place where people in different communities could meet.

The foregoing outlines a popular public move which is of much importance to sanitary and heating engineers. Much of the comfort and convenience of hotels depends upon the sanitary and heating equipment. The hotel owner can be shown where it means business to him from regular callers and by encouraging transient tourists, to have attractive and convenient surroundings for them.

MINUTE MESSAGE

Number Eight

Written for "Sanitary Engineer" by FRANK STOCKDALE

Management Series



Hustle Is In the Head—Not In the Feet

THE "Power Plant of Yesterday" as shown in the cartoon above brings home the fact that we live in a "whirl" of ever changing conditions.

The Plumbing Shop and its manager have not escaped being swept into this tide of progress—a tide so swift and relentless that the merchant of today must throw every ounce of his mental energy into the management of his business if he would successfully battle against the waves of keen competition and prevent disaster upon the breakers ahead.

You are in direct competition with the men whose headwork controls and directs the units of very successful organizations.

To meet such competition requires headwork on your part—headwork of the highest order, directed into many channels of your business where it will not lack for an opportunity to exercise. There will be plenty to do to keep your mental energy continually on the job.

It will take management, better management and still better management if you would combat those irresistible forces of competition and progress which are so apt to push the unwatchful plumber into the background and carry the watchful one forward to success.

Do you know your competitor's weakness? Do you know your own?

Does your sales force need more training?

What about your expenses, your stock, your prices, and your service? Your successful competitor knows the details of each in his store. Do you in yours?

If not—just hand the broom over to George. Let him do the sweeping. That's his job. Yours is managing.

"Hustle is in the head—Not in the feet."

THINK IT OVER—APPLY IT IN YOUR BUSINESS

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Questions and Answers Regarding Plumbing and Heating Practice

Sweating of Closet Tanks, Chimneys, Etc.

Editor, Sanitary Engineer,—

Will you please advise:

1. What makes a cast iron enameled closet tank sweat in a bathroom? The door in the bathroom is always open except when in use and there is also a window 18 in. x 20 in. open all the time. The sweating occurs only in very warm weather.

2. How can you prevent the tank from sweating?

3. What are the causes of a wet chimney? There being only one 7 in. stove pipe into it and it gets so wet that the water runs back through the pipes on to the floor.

4. Should the area of cold air pipes on a hot air furnace be the same area as the hot air pipes?

5. Does cold air expand when heated and if so how much?

6. What are the results when there are too many cold air pipes on a hot air furnace?

7. What kind of pipe do you recommend for coils in furnace, black or galvanized?—G. D., Belleville, Ont.

Answers.—1. The reason why a cast iron enamelled closet tank sweats is because the supply valve is leaking slightly, or else the W.C. is used very often, and the difference in the temperature of the water is very great.

2. To prevent such tanks sweating, find out first if the supply valve is, or is not leaking and have it fixed. If it is difficult to find out this, take a dry cloth, wipe all the moisture off the W.C. bowl just above the flushing ring and take some blotting paper and see if the water is leaking down the flushing bend into the W.C. flushing ring.

If that is not the trouble then the water is as above stated too cold, and the trouble can not be overcome in any way but by placing an asbestos curcled casing into the tank and a copper lining inside of that. Then see that all the openings in the air-celled asbestos are closed up by planing over the upper edge of the copper.

3. A wet chimney is as a rule a cold one. Cold air is being drawn out of the building in some way through the 7 in. pipes and causes soot and unconsumed material to accumulate in the pipes. Then when the cold air strikes this "Black Stuff" it condenses, and leaks through the point.

To overcome this trouble always install the smoke pipes in the opposite way to the general rule. Give the horizontal smoke pipes as much pitch to the chimney as possible. If there is a cleanout door in the front of the chimney, make a few balls of newspapers, light them and warm the chimney up a little before lighting the furnace.

4. No, there should be a less area of cold air pipes than hot air pipes. Air expands but to tell amount of expansion, depends upon whether the air is taken in from out of doors or simply re-circulated. However, the best authorities on this subject advise that to determine quantity of cold air to a furnace

through cold air ducts the following method should be carried out. Take the combined area of all the warm air pipes, and allow 25 per cent. less cold air duct area. For example, a furnace is fitted with five warm air pipes of the following size: one 8 in., two 9 in., one 10 in. and one 12 in. Combined, these have a total area as per table:

One—8 in. Diam.	50,265 Sq. in.
Two—9 in. " 63,617 each	127,234 " "
One—10 in. " "	78,540 " "
One—12 in. " "	113,097 " "

Total 369,136 Sq. in.

Therefore, at least two cold air ducts, each about 138,426 square inches, or rather, about two 10 x 14 cold air registers.—Editor.

To Remove Soot From Furnaces, etc.

Editor, Sanitary Engineer:—

I have been called upon from time to time recently to clean out furnaces that have become extremely dirty as the result of burning soft coal. Is there any way to overcome this trouble. Can soot be loosened up in some way from time to time and then easily cleaned out? It is bad enough to have to burn soft coal, but to know that soot is a great insulator of heat and not know how soot can be removed makes the situation very serious. Then again in reading over the newspapers I have noticed that fires have been started from soot accumulating in the flues, chimneys, smoke pipes, etc. Can you, Mr. Editor give any dope on this question?

A REGULAR READER

Answer:—The above is no doubt a very timely question. Large numbers of shingle roofs and defective flues fires are reported due to the increasing use of soft coal. The efficiency particularly of warm air furnaces has been greatly reduced and of course the accumulations of soot on heating surfaces reduces the heating value of fuels no matter what kind of a heating system is used. Not only so but soot frequently clogs the flues and starts fires.

While the writer was in Clinton, Ontario, one corner of the Town Hall was burned seriously as the result of the flues setting fire; soft coal was blamed for the fire. But there is a remedy and one which every old countryman will no

doubt remember, because it is a common thing to see the housewife adopt it when wishing to clean the chimney without having it swept. Here is the remedy:

Build up a good deep white hot fire, take some common salt which must first be thoroughly dried, throw or sprinkle the salt onto the hot fire in a quantity depending upon the size of the furnace or area of the fire.

In the case of a house heating furnace, about one pound at a time is ample. In the case of a large heating system such as would be in operation in schools, apartment houses or office buildings, factories, etc., four or five scoops full in quantity of about two or three shovels full would be enough and the salt should be spread over the whole surface.

The dampers should all be kept full open so as to maintain the furnace temperature and the salt is allowed to remain until the fumes have entirely disappeared. It will be noted that upon charging the salt, the furnace becomes filled with dense white fumes which may require as long as half an hour to disappear. If results are not secured on the first application, it should be repeated as many times as necessary.

Once the heating surface is thoroughly cleaned a small application every few days is all that will be needed to keep the system clean.

It is a simple remedy but is without a doubt the best and is used as stated before by all housewives in the British Isles.—Ed.

News Notes From Coast to Coast

NEW FIRMS

Regina, Sask.—Clarke & Wagner, tinsmiths, have commenced business here.

BUSINESS CHANGES

Hutchinson & Morrison, plumbers, Yorkton, Sask., are discontinuing.

Sarnia, Ont.—Nelson & Sing, plumbers, have sold out.

OBITUARY

J. B. de Cazes, tinsmith, Lauzon, Que., is dead.

Augustus P. Barry, a well-known engineer, and for more than 30 years an employee in the plumbing and sanitation branch of the Toronto health department, died at his residence, 2380 Queen street, east. He was suffering from heart trouble. Mr. Barry came to Toronto from Ireland more than 50 years ago, and was president of the Engineers' Club in 1909. He was also a member of the Engineering Institute of Canada. Although he had been in poor health for nearly a year he was able to continue at business until a few weeks ago.

PERSONAL

G. T. Pepall of Samuel and Benjamin, Limited, Metals, (Toronto) who, with Mrs. Pepall is travelling in Europe at the present time, writes from Florence, Italy, to say they are having a very delightful time in that historic city.

PLUMBER SEVERELY BURNED

Fire caused by the exploding of a tank of gasoline being used by the plumbers in repair work on a residence at 198 St. Louis Street, Montreal, resulted in one of the men sustaining severe burns about the face and arms, a fireman injured and a woman overcome with smoke. When the tank exploded, E. Ranger, one of the plumbers on the job, had his clothing set on fire. He rushed from the house in flames and fellow workmen, rolling him in a puddle of water, were able to extinguish the burning clothing before he had been fatally burned.

SEEKS DAMAGES FROM PLUMBER

A water tank which toppled over on its side and flooded the premises of Harry Mack, Toronto, is the cause of an action before Judge Denton. The tank was placed in the plaintiff's office by Shannon the Plumber, Limited, during July, 1922. The plaintiff alleges it was the fault of the plumbing concern that the tank collapsed. He seeks \$1,000 damages. The defendant declares there was no contract, and that there was no negligence on his part.

Doings in the Plumbing and Heating Industry

APPOINTED PLUMBING INSPECTOR

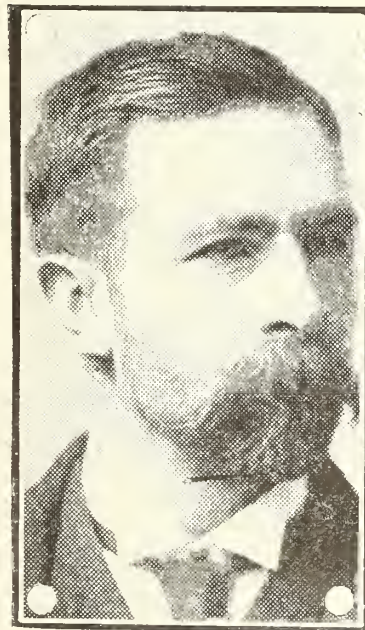
The appointment of E. Knott, Birchcliffe, Ont., as inspector of buildings and plumbing was approved.

PLUMBER IS HURT

William Saunders, plumber, 1247 Woodbine avenue, Toronto, suffered bruises and a severe shaking up when he fell from the roof of a house under construction at Frater and Woodmount avenues, yesterday afternoon.

NEW SEWERAGE SYSTEM FOR HAMILTON

Hamilton.—Plans for the construction of intercepting sewers and disposal works, involving a total expenditure of about two million dollars were laid before members of the city council. Messrs. Gore, Nasmith and Storries were present, and submitted their report E. R. Gray, formerly city engineer, read the report dealing with the sewer engineering side of the question which had been compiled with his advice and direction.



AUGUSTUS P. BARRY

For 30 years an employee of the Plumbing Department of the City of Toronto, and well known to many of the old established plumbers of Ontario, whose death is announced.

NORTH BAY TOLD TO INSTALL A CHLORINATING PLANT

North Bay, Ont.—As an indirect result of the epidemic of typhoid at Cochrane, North Bay municipality has been peremptorily ordered by the Provincial Board of Health to install a chlorinating plant for its water supply. A number of other municipalities equally far removed from the epidemic, are said to have received similar orders.

PLUMBING BY-LAW SUBMITTED TO COUNCIL

Birch Cliff.—Drafts of the Plumbing & Building By-law, were submitted at a special meeting of the council Monday.

H. J. Duffort, convenor of the Plumbing By-law Committee, submitted proposals which were accepted by the council.

The appointment of B. Knott, builder and contractor, as inspector of building and plumbing, was recommended, but his appointment was held over for discussion at the next regular meeting of council.

43 MEN ARE INDICTED IN THE BATHTUB TRUST

Twenty individuals and twenty-three corporations were found guilty by a Federal Court jury in New York of violating the criminal provisions of the Sherman anti-trust law by conspiring to fix prices and restrict the sale of pottery.

The trial covered a month, during which time hundreds of documents were introduced to provide that the defendants manufacture and sell more than 85 per cent. of the sanitary pottery ware made in the U. S. As members of a combination they were charged with restraint of trade and foreign commerce.

STATES AMUSEMENT PLACES MUST INSTALL PROPER DRINKING BUBBLERS

London, Ont.—Those who conduct billiard parlors, bowling alleys, dance halls, and similar establishments must conform to the provisions of the Public Health Act.

Board of health officials state that they are now undertaking a campaign to insure that proper drinking bubblers are available for the general public in such places of business. Orders to this effect went forward to certain firms with the warning that failure to comply within a reasonable interval will mean prosecution in the city police court.

All were notified last fall, it is further explained, but many have been delinquent.

TWENTY-ONE APPLY FOR PLUMBING INSPECTOR'S POSITION

Twenty-one applications for the position of plumbing inspector for York Township were presented to council. As the full report regarding the plumbing inspection of the past is not yet in, the applications were set aside until a later date.

FOUR NEW SERVICES WILL BE CONSTRUCTED IN CAMPBELLFORD

Campbellford, Ont.—There will be four sewers constructed in Campbellford this year, one on Garry street, on Inkerman, Rear and Second street. Work on the two first mentioned will be started at once, and that on the others as soon as some details are attended to in the way of estimates and engineering service.

TO DISTINGUISH SOIL PIPE WEIGHTS AT A GLANCE

A simple and convenient way to distinguish medium soil pipe from extra heavy is to take note of the hubs. The medium hub has a rounded bead pattern while that of the extra heavy is a flat bead.

CHLORINATE HAMILTON WATER

Hamilton, Ont.—No time should be lost in proceeding with the installation of machinery for the chlorination of Hamilton's water supply, it was stated by members of the board of control.

"I think we should take action in the matter of chlorination without delay," Controller Davis declared.

"The great danger in connection with an epidemic was the fact that the first sign that the city would have that typhoid was likely to occur would be the appearance of the disease itself. It would be then too late to avert the trouble.

"It is evident that the pollution of the water is increasing and we should do our best to guard against an epidemic," the controller added.

CAST IRON REPLACES WOODEN MAIN

Fernie, B. C.—At a special meeting of the Fernie city council, Fred J. Dawson, contractor, of Nelson, B. C., was awarded the contract for the laying of the new water pipe line and the annex sewer. In the latter, the contractor will supply the pipe. The new water pipe line to be laid will be cast iron, running from Victoria avenue to the Fairy Creek bridge and under the bed of the Elk river at that point to connect with the water main from the Fairy Creek dam, replacing wooden water pipe, through the city and the suspension pipe line across the river. The Fernie annex, which has been without sewer connection up to the present time is to be fully equipped in accordance with the by-law recently submitted to the ratepayers; the pipe will be of the vitrified clay salt glazed variety.

TENDERS WANTED

Hanover, Ont.—Separate or combined tenders for the supply of gate valves, relief valves, valve boxes, fire hydrants, centrifugal pumps, brass screens, chlorinator, etc., and for the construction of pump house, concrete reservoir, laying water mains, are invited by the council of the town of Hanover up to 2 p.m. on Thursday, May 10th, 1923.

EJECT RESIDENTS FOR UNSANITARY CONDITIONS

Toronto.—Forty residents of Woodbine Beach, a small peninsula lying between Ashbridge's Bay and Lake Ontario, have been ordered by the department of public health to vacate their homes within 30 days. Lack of water supply and sewerage facilities is the excuse given.

The Works Department reported it would cost about \$117 to install a one-inch water main and tap to provide a common water supply for Woodbine Beach residents, but that if a main had to be laid the whole length of the Beach, the cost would be \$800, which would have to be paid by the residents.

TENDERS FOR YORK WATERWORKS

Tenders for the new water supply system to be installed this year in North York Township were awarded at a special meeting of Council. Altogether 41 tenders were received for the eight contracts in connection with the work. The cost according to the tenders will be \$105,557.05.

The following were the successful bidders for the eight contracts: A. R. Campbell & Co., dam, pumping house and filtration plant, \$39,230; Bawden Machine Co., pumping machinery, \$12,117; International Filtration Co., filter equipment, \$12,050; Horton Steel Co., elevated steel tank; National Iron Pipe Co., cast iron pipe, \$19,000. The hydrants and valves tender, for which the lowest bid was \$367.50, was not let.

POWER SHORTAGE AFFECTS PLUMBING BUSINESS

St. John, N. B.—Some New Brunswick plumbing and heating contractors foresee increased business through the development of water powers into hydro electricity. It is contended that when distribution is effectively arranged, more industries will be built, and there will also be an increase in house building operations. The industries will receive the benefits accruing from cheaper operation, and there will thus be ample encouragement to build. One plumbing and heating contractor of St. John was called on to discuss a contract for installing both heating and plumbing systems in a new factory for which plans have been arranged. But the promoters have now decided to go else-

where because of impossibility to get the current in St. John for another year.

ACTIVE SPRING BUILDING

London, Ont.—Spring building has gotten under way here with a rush that is surprising even the most optimistic predictions and all records for permits are likely to be smashed. Every day sees permits for splendid homes, and architects are busy with plans for many others. Work is under way on many homes that will cost from \$6,000 to \$8,000. Plans are being prepared for several that will run from \$10,000 to \$25,000.

In addition to the rush of home building there are many larger projects under way, including a new \$100,000 factory for the Reid Bros. Stationery Co., a \$150,000 plant for H. J. Jones & Sons, Lithographers, a \$25,000 factory for the Green River Bottlers, \$50,000 alterations and extensions to Knox Presbyterian Church, a \$75,000 monastery for the Redemptorist Fathers, a \$100,000 apartment block for John Hayman & Sons, and about \$5,000,000 worth of new schools.

Plumbers report business as very good.

Catalogs and Booklets

Those interested in any of the catalogs described below can procure a copy of the same by writing direct to these firms. Mention that you noticed this in Sanitary Engineer.

HOW TO CHOOSE A WATER SYSTEM

The Duro Pump & Manufacturing Co., of Dayton, Ohio, have just issued an eight page booklet entitled "How to Choose a Water System." This little book contains some useful hints on rural water systems. Copies may be obtained by writing direct to the company.

HERCULES CHEMICAL CO.

The Hercules Chemical Co., Inc., manufacturers of "Hercules" drain pipe solvent, New York City, has announced that it will imprint plumbers' names on a few hundred circulars describing the product, which are suitable for enclosing with monthly statements and daily letters. Those desiring to receive this literature should communicate with the company.

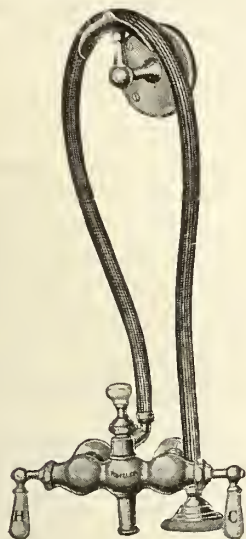
DE LAVAL STEAM TURBINE COMPANY

Small single-stage centrifugal pumps for motor or belt drive are described in a leaflet and in an instruction manual issued by the De Laval Steam Turbine Company, of Trenton, N.J. These pumps are made in 1½ and 2 in. sizes, and are designed for capacities ranging from 5 gal. per min. against 10 ft. head up to 130 gal. per min. against 150 ft. head. They are said to contain few and simple parts, which are manufactured to limit gages to insure interchangeability. The publications before us give very complete tables and instructions for selecting pumps for different conditions, and explain how to determine the proper speeds and how to select piping, valves, fittings, and driving pulley or motor to secure an efficient and satisfactory installation.

New Goods of Interest to the Plumbing Trade

TUB SHOWER FAUCET

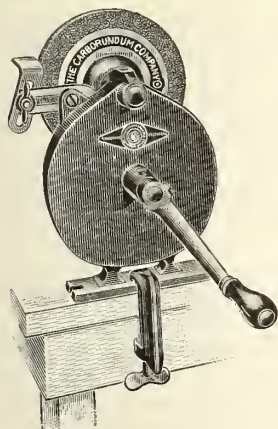
The Tub Shower Faucet, made by the H. Mueller Mfg. Co. Ltd., Sarnia, Ont., combines the features of a shower-bath with the ordinary type of tub and faucet. Five feet of finest quality rubber hose is permanently attached to the faucet and fitted with shower head. The push



button directs the water through spray or spout as desired; hot, cold or tempered. In addition to its use as a shower, the fixture is said to provide excellent means for the enjoyment of a beauty parlour shampoo in the privacy of the home, making it particularly appealing to women.

CARBORUNDUM GRINDER

The Carborundum Co. of Niagara Falls, N. Y., are introducing an improved Carborundum Niagara Grinder. Some radical changes are said to characterize

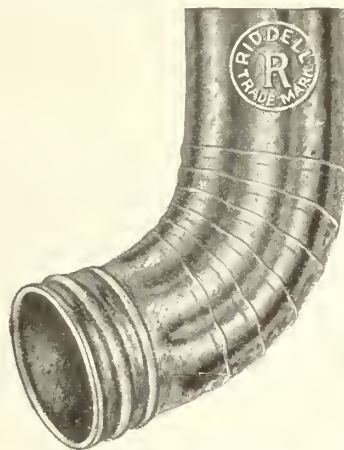


the construction of this new grinder, for instance, the main casting and the base are cast in one, and the clamp is a separate piece entirely. It is claimed that this will prevent breaking the base

casting when the clamp is tightened. Another change noted is the slotting of the base casting for screws or bolts with which to permanently fasten the grinder to a bench. The makers also point out that each machine is equipped with a genuine Carborundum grinding wheel and a specially constructed adjustable tool grinding guide for use in sharpening edge tools at any angle. The improved grinder is being made in three sizes and are numbered 1, 2 and 3.

RIDDELL CONDUCTOR ELBOWS

John E. Riddell & Son, Ltd., Hamilton, Ont., are now manufacturing for Canada the "Riddell" conductor elbow, in the pattern which was formerly obtainable only in the imported article. The manu-



facturers state that special attention has been paid to the construction of these elbows and that the results are perfect fit, correct angle, full length and a perfectly smooth surface inside. They also point out that by crimping the new elbows on the outside instead of the inside, no cavities are left to fill with moisture or dirt. Another feature said to characterize this product is the special process of galvanizing which is done electrically and is said to produce a bright lasting finish. The new elbows are made in all standard sizes, plain and corrugated.

ELECTRIC HEATING FOR BUILDINGS

Winnipeg.—The city hydro, it is understood, will in the near future report favorably on the possibility of heating some of the city schools, and possibly also the city hall and the public baths, by means of by-product or off-peak electricity now going to waste over the Point du Bois dam.

There isn't enough electricity yet developed in the whole province to heat all the buildings of Winnipeg by elec-

tricity, but it is possible to heat a certain number of them.

The present proposal to heat city schools and public buildings by electricity will not interfere, it is learned, with the use of by-product electricity in connection with a central steam heating plant should the city decide to combine the latter with its standby plant, nor would the granting of a central heating franchise for Fort Rouge interfere with a combined standby and central heating plant.

GOOD ORDER FOR SOMEONE

Some Fort William plumbing concern is going to receive a fat contract in the near future. Recently the Victoria block, a main street structure was destroyed by fire and the owner, James Murphy, will rebuild it. He has sold all the radiators to the wreckers of the building and will install a new, complete heating and plumbing equipment.

COMPEL HAMILTON TO PROTECT

Force will be brought to bear upon the city of Hamilton to protect its water supply.

About a week ago, the city applied for a main on Burlington Street, at a cost of \$144,000. The main was laid last year, but the order was sought so the city might legally issue debentures for the cost of the work without appealing to the people. The board notified Mayor Jutten that it would not grant the city the desired order till the city complied with its wishes by installing a chlorination plant.

PATTERNS FOR AUTO FENDERS

(Continued on page 17)

elevation. This enables drawing the miter lines as shown.

To set out the pattern pick the girth from plan of lip and set it on a line C'-D and square up lines as shown.

Then pick the widths from front elevation and you have the pattern finished.

The balance of the rim of fender can be taken direct from the side elevation only allowing edges for enclosing a wire or just rolling it as desired.

Edges must be allowed on all patterns.

CANADIAN MANUFACTURERS PLANNING VISIT TO JAPAN

In response to an invitation tendered by a number of the prominent organizations of Japanese business men, the Canadian Manufacturers' Association is making tentative plans looking toward the sending of a representative body of Canadian manufacturers to Japan during the months of September and October of this year.

Market Conditions and Tendencies

Price Trend on Sanitary and Heating Supplies

Markets at a Glance

THE changes in quotations for this issue of Sanitary Engineer cover rather a wide area and contain both advances and declines in price. The outstanding advance is that recorded on iron pipe quotations which have been completely revised and list No. 59 replaces list No. 58 and is from 3 to 5 per cent. higher. Wrought nipples discounts are 5 per cent. lower on all sizes and fittings' prices have undergone a change to slightly higher levels. Queen's Head galvanized iron is now quoted at \$8.00 per cwt., for import, and English Canada plates and tin plates are about 10 per cent. higher. Closet combinations with vitreous and cast iron enameled tanks are both at

higher levels, the former being quoted at \$29.00 and the latter at \$31.00. There is also a slight change in cast iron enameled tanks on which the price is now \$18.90. Quotations on iron and steel products are approximately 15c per cwt. higher than the recent levels.

The declines in price are not so numerous as are the advances but they affect some important items including solder which has receded from 1½c to 5c per lb. on the various grades, scrap materials which have shown a tendency toward weakness, a reduction of 2c per gallon on gasoline and drop of 1c per gallon on Royalite oil.

Montreal Markets

MONTREAL, April 28.—Price changes have not been so numerous in the local markets during the past two weeks. One of the most important to be recorded is that on wrought pipe on which an advance of approximately five per cent. has just been announced, a similar advance being made on wrought nipples. A slight discount cut has been noted on pipe fittings and on Jenkins valves there has been an appreciable change.

The only downward move has been in the case of closet tanks where a price readjustment has resulted in lower prices on some styles on tanks. In the scrap market, quotations on rubber shoes are slightly lower this week.

In the asbestos product market where an advance was made on magnesia block two weeks ago, there is an indication that there will be another advance. The situation on the American market as it affects the local situation will make this necessary very shortly, according to local distributors.

There is a dull tone this week in the ingot metal markets, this being a reflection of the unsettled and weaker condition existent in the primary metal markets.

NO FURTHER CHANGES IN PRICE OF SOIL PIPE

Montreal.

A fair amount of trading in soil pipe and fittings is reported locally at the recently revised quotations which are as follows:

SOIL PIPE—

2 and 3 inch	33 1-3%
4 inch	33 1-3%
5 and 6 inch	33 1-3%
8 inch	net

FITTINGS—

2 to 6 inch	45%
8 inch	net

DISCOUNTS ON PIPE FITTINGS HAVE BEEN REDUCED

Montreal.

The past week has seen a revision of discounts on pipe fittings, a cut of 2½ per cent. being made in the discounts on a number of lines, including cast iron

fittings, plugs, bushings and unions. There has been no change in the price of malleable fittings. Trading is reported good at the following quotations:

PIPE FITTINGS—

Cast iron fittings	15%
Plugs, cast iron	15%
Do., solid	15%
Do., countersunk	15%
Bushings, cast	17½%
Do., malleable	17½%
Unions	33 1-3%
Flanged unions	15%
Flanged fittings	27½%
Dart unions, black, ½ to 2 in.	33 1-3%
Do., ½ in., 2½ in., and larger	23%
Do., galv. add to black	30%
Nipples, ½ to 4", close and short	50%
Do., long	55%
Do., 4½ to 8", close and short	40%
Do., long	45%
Couplings, 4" and under	25%
Do., 4½" and larger	5%

Malleable Fittings—

Price list effective June 1st, 1922. Discount 65 per cent.

LEAD AND ZINC PRODUCTS SHOW MODERATE ACTIVITY

Montreal.

Lead and zinc products have remained steady in the local market during the past two weeks, only moderate activity being reported. Since the recent advance in the price of zinc there has been no further change in quotations, the following being those now in effect locally:

LEAD AND ZINC PRODUCTS—

Lead pipe, per 100 lbs., up to 2"	14 50
Do., 2" to 8"	15 50
Do., 8" and over	16 50
Lead waste, per 100 lbs.	15 50
Note—Lead pipe is subject to a discount of 10%	
Lead traps and bends	15%
Lead wool, lb.	0 14½
Lead sheets, 2½ lbs., sq. ft. lb.	0 12
Lead sheets, 3 to 3½ lbs., sq. ft. lb.	0 11½
Do., 4 to 8 lbs., sq. ft. lb.	0 11
to size, ¾c. lb. extra.	
Solder, guaranteed, lb.	0 34
Do., strictly, lb.	0 31
Cut sheets, ¼c. lb. extra and cut sheets	
Do., commercial	0 30
Do., wiping, lb.	0 30
Do., wire, lb.	0 44½
Zinc, sheets, casks	0 11
Do., broken lots	0 12

TRADING IN CEMENT REPORTED STRONG LOCALLY

Montreal.

Much building and contemplated building have given the cement business prospects of an unusually good year. There has been no price change in this product recently, local quotations being on the following basis:

CEMENT—

Car load lots, per bag, F.o.b. steam cars	0 86
Per Bag, delivered	0 94
Less car lots, per bag, F.o.b. yard	0 94
Per bag, delivered	1 04
Less 5 per cent	1 04
Rebate of 20 cents for empty bags.	

ANOTHER ADVANCE IS LIKELY IN ASBESTOS PRODUCTS

Montreal.

While quotations on asbestos products remain as revised two weeks ago when there was an advance in magnesia covering, advice received locally

from primary sources indicate that another advance on this product is very likely at no far distant date. In the meantime, the following quotations remain in force, with business picking up slowly and prospects good:

ASBESTOS PRODUCTS—

	Off list prices
2 ply pipe covering	57½%
3 ply pipe covering	55%
4 ply pipe covering	50%
85 per cent. magnesia	35%
Boiler covering	Per bag \$1 50
Asbestos sheathing	Per 100 lbs. 7 75 8 25

METAL LATH MARKET SHOWS NO SIGNS OF CHANGE**Montreal.**

There is little change in the trading in metal lath recently, business continuing fairly good at the following quotations:

METAL LATH—	per sq. yd.
Painted—	
26 gauge	23c.
24 gauge	28c.
32 gauge	32c.
Galvanized, 10c. per sq. yd. extra.	

CORRUGATED SHEET MARKET IS IMPROVING STEADILY**Montreal.**

A steady improvement continues to feature the week's trading in corrugated sheets locally. This business will undergo a still further improvement when the opening of navigation on the St. Lawrence makes delivery by water possible. Prices remain at the following levels:

CORRUGATED SHEETS—	Per 100 sq. ft.
No. 28 gauge	7 00
No. 26 gauge	7 50
No. 24 gauge	10 00
No. 22 gauge	12 50
No. 20 gauge	14 00
No. 18 gauge	19 00
Less 10 per cent.	
Lighter than 24 gauge and wider than 27 ins., 75 cents per square extra.	

NEW DISCOUNTS ARE QUOTED ON JENKINS VALVES**Montreal.**

The past week or so have seen the reduction of the discounts on Jenkins valves by a good degree, other compression goods remaining as when last quoted. Trading is reported to be fairly strong at the following quotations:

VALVES AND BIBES—

Compression work, standard	45%
Fuller work, standard	30%
Quick opening, compression bibbs	43%
Bath cocks, quick opening	38%
Bath cocks, compression	40%
Basin cocks, quick opening	46%
Flatway stop and waste cocks, standard	54%
Roundway stop and waste cocks, std.	42%
Brass steam cocks, standard, ¼ in.	50%
Radiator valves, standard	55/25%
Do., removable discs	55/25%
Globe, angle and check valves, std.	25%
Gate or straightway	25%
Emco globe valves	33%
Emco check valves	33%
Jenkins globe, angle, check and swine check	plus 15%
Jenkins gate or straightway	plus 11%
Jenkins iron body, globe and angle	plus 10%
Jenkins iron body, gate	12%
N. P. "O" and "S" traps	34%

TRADING IS REPORTED LIGHT IN RADIATION GOODS**Montreal.**

Trading in radiation goods, as is to be expected at this particular season of the year, is fairly quiet on the local market. Neither is there any activity

in prices, the following quotations which have been in force for some time past still ruling locally:

RADIATORS AND BOILERS—

Radiator list prices are for 1, 2, 3, 4 and 5 column radiators, per sq. ft.
45 in. to 38 in., \$1; 32 in., \$1.10; 30 in., \$1.15; 26 in., \$1.20; 23 in., \$1.26; 22 in., \$1.30; 20 in., \$1.36; 18 in., \$1.40; 16 in., \$1.50; 14 in., \$1.55; 13 in., \$1.60. Discount 44 per cent for hot water, and 45 per cent. for steam.
Wall radiators—5 ft., \$1.15; 6 ft., \$1.10; 7 ft., \$1.05; 9 ft., \$1.05; 12 ft., \$1.05; Discount 41 per cent.

Boilers—Round hot water boilers, sizes from 0 to 10, 52 per cent. off list. Square or sectional hot water or steam boilers, 15 in., 3 per cent. with Ontario Government trimmings, list. Square or sectional water boilers, 19 in. to 36 in., 8 per cent. Square or sectional steam boilers, 19 in. to 36 in., 5 per cent. Ontario Government trimmings, list plus 7 per cent. Square or sectional water or steam boilers, 48 in., list plus 10 per cent. With Ontario Government trimmings, list plus 18 per cent.

Round steam boilers, standard trimmings, 16 per cent. Ontario Government trimmings, 13 per cent.

F.o.b. Montreal, Toronto, Guelph.

EAVES AND CONDUCTORS SHOW STEADY IMPROVEMENT**Montreal.**

Strong seasonable trading is reported in eaves and conductor pipe by local distributors. Prices have shown no tendencies to deviate from the levels established early in the spring, quotations remaining as follows:

EAVESTROUGH—

O. G. round and half round, per 100 ft. 3 in., \$16.90; 10 in., \$18.70; 12 in., \$22.20; 15 in., \$35.50; 18 in., \$45.00.

O. G. Square bead, per 100 ft; 8 in., \$15.90; 10 in., \$17.70; 12 in., \$21.20; 15 in., \$34.50; 18 in., \$44.00.

Discount 65 and 5 per cent.

CONDUCTOR PIPE—Round, Plain and Corrugated, per 100 ft.; 2 in., \$18.40; 3 in., \$22.30; 4 in., \$29.60; 5 in., \$48.00; 6 in., \$58.80.

Discount 65 and 5 per cent.

CONDUCTOR ELBOWS—

Plain or corrugated, price per doz 2 in., \$5.25; 3 in., \$6.00; 4 in., \$10.50; 5 in., \$24.00; 6 in., \$29.00.

Discount 55 and 5 per cent.

WROUGHT NIPPLES ARE QUOTED AT HIGHER LEVELS**Montreal.**

An upward revision has been made this week in the price of wrought nipples, the old discounts having been lessened by five per cent. The new discounts are: close and short, 4 inch and under, 45 per cent.; 4½ inch and over, 35 per cent.; long, 4 inch and under, 50 per cent.; 4½ inch and longer, 40 per cent.; running thread, 4 inch and under, 25 per cent.

COPPER AND BRASS FIRM AT RECENT ADVANCE**Montreal.**

Brass and copper products remain firm at the advance of two weeks ago, there being no indication that any further change will take place in the immediate future. The market is steady but without any particular feature at this time, the local quotations being as follows:

BRASS—

	Base
Sheets, base	0 27
Rods, base, ½ to 1 in., round	0 24
Tubing, seamless, base	0 32

F.o.b.**COPPER—**

Rods, ½ to 2 in.	0 30
Soft sheets, plain, 16 oz. and heavier ..	0 33
Plain tinned, 16 oz. and heavier	0 40
Polished, and tinned, 16 oz. and heavier, lb.	0 44
Tubing, lb.	0 33
Above prices are full sheets and bars. Cut sheets and bars are 5c. per lb. higher.	

NEW HIGHER QUOTATIONS ON BAR PRODUCTS**Montreal.**

The past week has seen an advance on bar iron of forty cents base, making the new price quoted locally \$3.95. Other products have increased accordingly as will be noted in the following list of quotations:

IRON AND STEEL—

Common bar iron, 100 lbs.	3 95
Refined iron	5 45
Irish finish machinery steel	4 00
Mild steel	3 95
Single reeled machinery steel ..	5 00
Band steel	3 95
Sleighshoe steel	3 95
Spring steel	5 00
Tire steel	4 15
Harrow tooth steel	3 80
Toe caulk steel	4 85
Mining tool steel, per lb.	0 19
Black Diamond tool and cast steel, per lb.	0 19

NOTE.—Refined iron is approximately \$1.50 per cwt. over base, but fluctuates owing to unsettled market.

Band steel in scroll bundles, 50c per 100 lbs. extra.

Iron and steel 3-16 in. and thinner, 50c per 100 lbs. extra.

RUBBER SHOES QUOTED LOWER IN SCRAP MARKETS**Montreal.**

Trading continues to improve in the scrap metal market here and is reported as good at the present time. Prices remain with little change, the only new quotation noted this week being a decline of half a cent in the price of rubber shoes. The following are the average local quotations:

SCRAP MATERIALS—

Automobile tires	0 50
Rubber Shoes	0 03
Yellow brass	0 05½ to 0 06
Red brass	0 09
Light brass	0 04½
Scrap zinc	0 04¾
Lead, heavy	0 05
Lead, tea	0 03
Light copper	0 08½ to 0 09
Heavy copper	0 11¼
Wrought iron, R. Rd., No. 1, per gr. ton ..	12 00
Malleable scrap (ton)	9 00 to 10 00
Pipe scrap (ton)	7 90
Heavy melting steel	9 00
No. 2 busheling	3 00
Boiler plate	3 00 to 9 00
No. 1 machinery cast	20 00 to 22 00

LITTLE ACTIVITY IN MARKET FOR RANGE BOILERS**Montreal.**

Range boilers remain somewhat inactive on the local market, with prices at the same levels quoted for some time past. The following prices are in force locally:

RANGE BOILERS—

5 Gallon	\$13.50
12 "	14.00
18 "	15.00
25 "	16.50
30 "	17.50
35 "	20.50
40 "	22.75
52 "	38.00
66 "	60.75
82 "	74.00
100 "	103.00
120 "	117.00
144 "	164.00
168 "	187.00
192 "	210.00
Std., less 40 per cent.: Ex. Heavy, 30 per cent.	

SHEET METAL MARKET REMAINS IN FIRM POSITION**Montreal.**

Locally, the sheet and plate market still remains at the levels which have been in force for some time past. The market is said to be good and increasing-

ly firm but there still remains a considerable range in the prices quoted by local distributors. This range is covered in the following list of quotations:

GALVANIZED SHEETS—

	Queen's Head	Fleur de Lis
18—20 gauge	6 65 6 90	6 40 6 65
26 gauge	7 25 7 50	7 00 7 25
24 gauge	6 95 7 20	6 70 7 95
22 gauge	6 90 7 15	6 65 6 90
28 gauge	7 50 7 75	7 25 7 50
Other Brands—		
10% oz.	7 25	7 50
28 U. S. base	7 00	7 25
26 U. S. base	6 60	6 85
24—22 gauge	6 35	6 60
20—18 gauge	6 15	6 25
16 gauge	6 00	6 10

Above prices are for 1/2 ton lots in English iron and 1000 lb. lots in American iron with an extra charge of 25c. for less quantities. Extra for sheets 3 ft. wide, 28 gauge and 10 3/4 oz., 25c. per 100 lbs.

Further extra for sheets 4 ft. wide according to gauge.

TIN PLATE—

20 x 28 x 100 lbs. basis	15 50
20 x 28 IC, 112s	16 00
20 x 28 IX, 112s	18 00
20 x 28 IXX, 56s	11 00
20 x 28 IXXX, 56s	12 00

TERNE PLATE—

20 x 28 IC, 112s, 200 lb.	14 50
20 x 28 IC, 112s, 214 lb.	15 00

CANADA PLATE—

Half bright 52s	5 50
Half bright 60s	5 60
Blued 52s	5 90
Blued 60s	6 00
Welsh, polished, 60s	7 35
Welsh, polished, 52s	7 10
Galvanized, 52s	8 00
Galvanized 60s	8 50

LOWER PRICES ARE QUOTED ON SOME CLOSET TANKS

Montreal.

The past week has seen a price adjustment on closet tanks, some lines going up slightly and others down. Of the four types quoted in the list which follows, the first is down \$1.00, the second up \$1.00 and the remaining two down \$2.00. Combinations, bowls and seats remain unchanged. A slow season is reported in the local market, little trading having opened up as yet. The following are the quotations in force:

CLOSET COMBINATIONS—

Low Down Outfits, each	
Closet, standard outfit, oak	24 00
Do., post hinge seat	25 00
Do., oak vitro or Pussyfoot	24 50
Do., post hinge seat	25 50
Do., mahogany vitro or Pussyfoot, post hinge seat and cover	28 00
Do., vitreous china, oak post hinge seat and cover	29 00
Do., vitreous china, mahogany post hinge seat and cover	30 00
Do., white vitro or Pussyfoot, mahogany post hinge seat and cover	30 00
Do., enamelled iron tank, oak post hinge seat and cover	29 50
Do., enamelled iron tank, mahogany post hinge seat and cover	29 50
Add for 3/4" valve on supply pipe	1 25
Add for spud	0 60
Add for reverse trap bowl	1 50
Add for syphon jet bowl	7 00
Deduct for supply pipe	0 80
Deduct for floor hinge	0 60

CLOSET BOWLS—

Riche'au bowl	8 00
Washdown bowl with spud	9 50
Reverse trap bowl with spud	9 50
Syphon jet bowl with spud	15 00

CLOSET SEATS—

Oak post hinge seat and cover	3 85
Oak wood strip seat and cover	3 50
Mahogany finish post hinge seat and cover	4 05

CLOSET TANKS—

Low down, oak vitro or Pussyfoot with fittings less seat	12 00
White vitro or Pussyfoot with fittings, flush elbow and supply	16 50
Vitreous china tank with fittings, flush elbow and supply	16 00
Enamelled iron with fittings, flush elbow and supply	16 00

STEADILY IMPROVING MARKET IN COTTON WASTES

Montreal.

Conditions in the local market continue to improve steadily in the cotton waste market and indications point to an exceptionally good season, say local distributors. There has been no recent change in prices, the following being those in force at the present time:

COTTON WASTES—

	Per lb.
Cream polishing	0 24
White, XXX extra	0 20
White, XX grand	0 18 1/2
White, XLCR	0 17
X Empire	0 15 1/2
X Press	0 14

Colored—

Fancy	0 15 1/2
Lion	0 14
Standard	0 12 1/2
Popular	0 10 1/2
Keen	0 08 1/2

Wool Packing—

Arrow	0 25
Axle	0 21
Anvil	0 17

Dominion Wipers—

White cotton	0 20
Colored cotton	0 13 1/2

WROUGHT PIPE UNDERGOES MOVE IN UPWARD DIRECTION

Montreal.

An advance in wrought pipe which is approximately five per cent. over the list prices issued in February was announced this week, taking effect on April 25. The new list is as follows:

WROUGHT PIPE

Price List No. 59. April 24th, 1923.

Size	Standard Butt Weld Pipe S C per 100 feet.		Steel		Gen. Wrot.		Iron	
	Blk.	Galv.	Blk.	Galv.	Blk.	Galv.	Blk.	Galv.
3/8 in.	6.00	8.00	4.32	6.30	7.56	9.60	13.11	16.33
1/2 in.	4.32	6.30	5.53	6.97	7.82	9.35	12.07	13.77
3/4 in.	4.32	6.30	6.79	8.40	9.55	11.27	13.11	16.33
1 in.	9.69	12.07	13.11	16.33	18.63	22.08	15.68	19.53
1 1/4 in.	15.68	19.53	21.09	26.27	29.97	35.52	21.09	26.27
1 1/2 in.	21.09	26.27	33.35	41.54	45.54	54.32	33.35	41.54
2 in.	33.35	41.54	43.61	54.32	58.14	65.79	43.61	54.32
2 1/2 in.	43.61	54.32	56.12	69.00	71.76	81.75	56.12	69.00
3 in.	56.12	69.00	66.49	81.75	88.14	100.00	66.49	81.75

Standard Lapweld Pipe S C per 100 ft.

Size	Steel		Gen. Wrot.		Iron	
	Blk.	Galv.	Blk.	Galv.	Blk.	Galv.
2 in.	24.42	29.60	33.30	38.85	36.27	44.46
2 1/2 in.	36.27	44.46	47.43	58.14	65.79	77.27
3 in.	47.43	58.14	57.04	69.92	79.12	92.92
3 1/2 in.	57.04	69.92	67.58	82.84	93.74	110.09
4 in.	67.58	82.84	78.74	96.52	1.14	1.33
4 1/2 in.	78.74	96.52	91.76	112.48	1.33	1.55
5 in.	91.76	112.48	1.19	1.46	1.73	2.02
6 in.	1.19	1.46	1.55	1.90	2.21	2.62
7 in.	1.55	1.90	1.63	2.00	2.33	2.75
8 in.	1.63	2.00	1.87	2.30	2.68	3.17
9 in.	1.87	2.30	2.23	2.83	3.04	3.58
10 in.	2.23	2.83	2.14	2.62	3.04	3.58
10 1/2 in.	2.14	2.62	2.76	3.38	3.91	4.61

ONLY LIGHT TRADING REPORTED IN ENAMELED WARE

Montreal.

Only light trading is reported to date in enamelled ware locally. Prices remain at former levels and show no indication of any change in the immediate future. Local quotations are on the following basis:

ENAMELED WARE—

Sinks, flat rim—	1 only	2 only	3 only
16 x 24	\$ 7 50	\$ 7 40	\$ 7 30
18 x 30	8 70	8 60	8 50
20 x 30	9 90	9 80	9 70
Bath tubs, roll rim, 4, 4 1/2, 5 feet, 24 to 30 in. wide	51 40		
Bath tubs, 5 1/2 feet,	57 10		
Lavatories—			
17x19 in. Apron F139 or P4045	15 30		
18x24 in. Apron F154 or P3845 or P3847	23 60		
18x21 in. Apron F169 or P4205	17 60		
17x19 in. Roll rim. F241 or P4345	12 60		
Less 30 per cent.			

INGOT MARKET IS IRREGULAR DURING WEEK

Montreal.

The tendency in the ingot metal market is still towards lower prices although there is some irregularity in the trend. Business generally is quiet as buyers are awaiting lower prices and until there is some indication of an upward turn will continue to hold aloof.

TIN.—After last week's decline there was a recovery in London early this week of £10 per ton but New York failed to respond and most of the advance has been lost. Until there is an indication that America is buying it is difficult to see how prices can advance in London. The trend of the market will probably be irregular. The local market is dull and unchanged at 51 cents per pound.

COPPER.—The New York market continues to record lower levels and it is evident that buyers are well covered for the near future. The London market holds fairly well but this is partly owing to the decline in sterling. Should the situation in England improve there is a possibility that export demand may start again, but at the moment this is uncertain. The local market is dull at 20 cents for casting and 20 1/2 cents for electro.

LEAD.—London is slightly lower than last week but appears somewhat more steady than it has been recently. There is no sign, however, of any improvement and it is possible that the market may go lower yet. The American market is again slightly lower and would appear to be bound for lower levels. The decline, however, is very gradual as consumption is still very heavy. The local market is dull at 8 3/4 cents a pound.

SPELTER.—East St. Louis is again lower this week and spot spelter is now quoted at 7 cents which represents a decline of one cent per pound from the high level reached last month. A reaction upwards is overdue and no doubt there is a certain consuming demand awaiting a turn in the market. London still declines and is well below the parity of American prices. The local market is dull at 10 cents per pound.

ANTIMONY.—This metal is quiet and while the situation is fairly firm it is affected by a weaker feeling generally. The local market is fairly firm owing to light stocks available. Quotations are 8 1/2 cents for high-grade English and 8 cents for Chinese.

ALUMINUM.—This market is dull and unchanged at 25 cents per pound.

AMERICAN SHEET MARKET ADVANCING RAPIDLY

Montreal.

Some surprise has been occasioned by the size of the advance put into effect on sheets and tin plates by the American Sheet & Tin Plate Co. The new prices are \$7.00 per ton higher on blue and black sheets, \$8.00 per ton on galvanized sheets and \$11.00 per ton on tin plates.

Toronto Markets

TORONTO, April 28.—Numerous changes have taken place in market quotations on lines of interest to the Sanitary Engineering trade, within the last two weeks. The more important adjustments are again in the upward direction and reflect the firm trend of basic materials. Iron pipe prices have advanced considerably and a complete new list of prices has been issued. This change has followed rapidly a similar development in the American pipe market, which recorded an advance earlier in the month. Nipples are up 5 per cent. in price through a reduction in discounts; fittings discounts are again lowered from 1½ to 5 per cent., making the third revision of a similar character in recent weeks. Some lines of closet combinations take higher levels, practically all lines of English sheet iron are higher in price and quotations on iron and steel bars, bands and plates, have been advanced approximately 15c per cwt.

Solder has reflected the weakness noted in quotations on lead and tin in primary sources and slightly easier prices are being quoted. Gasoline and coal oil have both been reduced in price, the former now being quoted at 27c and the latter at 20c. The scrap material market has also weakened slightly within the last two weeks.

The business outlook in the plumbing and heating trade has shown a steady improvement and a good season's work seems assured in most localities. Building programmes are being carried forward at a satisfactory rate, the improved weather conditions helping materially in opening up opportunities for doing outside work.

IRON AND STEEL QUOTATIONS GO HIGHER

Toronto.

The firm trend noted in primary sources has been reflected to some extent in quotations on iron and steel on the local market. Bars, hoops and bands have all felt the effect of the strong tone in this market as will be noted in the quotations shown below which are now in effect locally.

IRON AND STEEL—

Mild steel bars and small shapes	\$3 60	\$3 75
Mild steel bands, 3-16 in. base	4 00	4 25
Bar iron, base	3 75	3 75
Horse shoe steel	4 25	4 25
Tire steel	3 60	3 95
Spring Steel	10 50	10 50
Sleigh shoe steel	3 50	3 75
Cold drawn steel	4 60	4 75
Hoop steel, heavier than 1"x20G	4 75	5 00
Do., lighter than 1"x20G	5 35	5 50
Norway iron	12 50	12 50
Toe caulk iron	4 20	4 20
Crucible cast sheet steel	28 00	28 00
Mining drill steel	18 50	18 50
Cast tool steel, high grade	30 00	30 00

CANADA AND TIN PLATES FIRMER IN PRICE

Toronto.

Canada and tin plates are reported firm from all sources. Quotations on English sheets have moved to slightly higher levels and indications are that fall orders will be at least at present levels. Prices quoted below are for the usual quantities.

PLATES, CANADA—		Per box
Ordinary, 52 sheets	5 45	5 50
Do., 60 sheets	5 50	5 60
Blued and oiled, boxes 52's.	5 80	5 90
Do., boxes, 60's	5 90	6 00
English blue 52 sheets	5 90	6 25
English polished, 52 sheets	7 25	7 25
WELSH CANADA PLATES—		
Cold polished, 18 x 24 60's.	7 35	7 35
Cold polished, 18 x 24 52's.	7 10	7 10
PLATES, COKE TIN—		
IC, 20 x 28, 112 sheets.	16 00	18 00
IX, 20 x 28, 112 sheets.	16 25	18 00
IXX, 20 x 28, 56 sheets	9 80	11 00
PLATES, CHARCOAL TIN—		
IX, 20 x 28, 56 sheets.	8 50	9 00
IXX, 20 x 28, 56 sheets	9 90	10 50
PLATES, TERNE—		
IC, 14 x 20, 112 sheets	14 50	15 00

SOLDER PRICES SLIGHTLY EASIER

Toronto.

The moderating tone in primary market reports on lead and tin have been reflected to a slight extent in quotations on some grades of solder. There is still quite a range in prices being quoted locally as shown in the list following:

LEAD AND ZINC GOODS—

Lead pipe, per 100 lbs., up to 2".	14 50
Do., 2" to 8"	15 50
Do., 8" and over	16 50
Lead waste, per 100 lbs.	15 50
Note—Lead pipe is subject to a discount of 10 per cent.	
Lead traps and bends	15%
Lead wool, lb.	0 14½
Lead sheets, 2½ lbs. sq. ft. per lb.	0 12½
Lead sheets, 3 to 3½ lbs.	0 11½
Do., 4 to 8 lbs., sq. ft. lb.	0 11½
Solder, guaranteed, lb.	0 32
Do., strictly, lb.	0 30
Do., commercial	0 28¼
Do., wiping	0 30
Do., wire	0 37
Zinc sheets, casks, lb.	0 11¾
Do., do., less, lb.	0 12¼

VALVES AND BIBBS PRACTICALLY UNCHANGED

Toronto.

Quotations on valves and bibbs have remained at the recent levels, with the exception of Emco standard globe valves which are now quoted at 23% off the list and Emco check valves which are now 28% off instead of 33% as formerly. Prices shown below are those quoted by Toronto jobbers.

VALVES AND BIBBS—

Compression work, standard	45%
Fuller work, standard	30%
Quick opening compression bibbs	45%
Bath cocks, compression	41%
Jenkins iron body, gate	12 and 10%
Bath cocks, quick opening	41%
Basin cocks, quick opening	46%
Flatway stop and waste cocks, std.	54%
Roundway stop and waste cocks, standard	54%
Brass steam cocks, standard	50%
Radiator valves, standard	55/25%
Do., removable discs	55/25%
Globe, a angle and check valves, standard	25%
Gate or straightway	25%
Emco Globe valves, standard	23%
Emco check valves	28%

FITTINGS PRICES AGAIN CHANGED IN UPWARD DIRECTION

Toronto.

The fittings market has been the most active in recent weeks. For the third time within a month there has been a revision in prices and each time to higher levels. The new list of discounts shown below are from 1½ to 5 per cent. higher than those noted recently.

PIPE FITTINGS—

Cast iron fittings, standard	15%
Do., do., extra heavy	15%
Plugs, cast iron	15%
Do., solid	15%
Do., countersunk	15%
Bushings, mail	17½%
Bushings, cast	17½%
Unions, ¼ in. to 2 in.	33 1-3%
Unions, ¼ in., 2½ to 4 in.	33 1-3%
Flanged unions	15%
Flanged fittings	25%
Nipples, blk. and galvd. ¼ to 4 in., close and short	50%
Do., 4½ in. and larger	40%
Do., long ½ in. to 4 in.	55%
Do., 4½ in. and larger	45%
Do., running thread	30%
Couplings, 4 in. and under	25%
Do., 4½ in. and larger	5%

MALLEABLE FITTINGS—

New piece list, adopted June 1, 1922.

1 in. elbow	0 32	0 53
2 in. elbow	1 05	1 70
1 in. tee	0 43	0 70
3 in. tee	1 45	2 40
1 in. coupling R. & L.	0 33	0 59
1 in. locknut, R. & L.	0 15	0 23
Discount, Less 65 per cent.		

SCRAP MATERIAL MARKETS SHOW SLIGHT CHANGES

Toronto.

The scrap material market presents a more or less unsettled condition for the week. Some firmness is noted in quotations on brass and steel scrap, but rubber products have shown a decidedly weak tendency. The following prices are those usually asked for car-lot quantities:

SCRAP MATERIALS—

f.o.b. Toronto

Scrap Iron	
Heavy melting steel	16 00 — 17 00
Scrap pipe	9 00 — 10 00
Steel turnings	12 50 — 13 50
Malleable scrap	14 50 — 15 00
Rails, scrap	14 50 — 15 00
Net tons—	
No. 1 cast	19 00 — 20 00
Stove plate	14 50 — 15 00
Car wheel (std.)	16 00 — 17 00

Scrap Metals

Heavy copper wire	13 00 — 14 00
Light copper	10 50 — 11 00
No. 1 composition	10 50 — 11 50
Red brass turnings	9 00 — 10 00
Light brass	5 00 — 5 50
Heavy yellow brass	7 00 — 8 00
Heavy lead	5 25 — 5 75
Tea lead	3 25 — 3 75
Scrap zinc	5 00 — 5 75

Scrap Rubber

Boots and shoes	3 00 — 3 25
High rubber boots	2 00 — 2 50
Auto tires	0 75 — 0 90
Solid tires	1 00 — 1 25
Inner tubes, mixed	3 50 — 4 00
Peelings, mixed	1 50 — 2 00

CLOSET COMBINATIONS FIRING IN PRICE

Toronto.

A slight adjustment has been made in quotations on closet combinations with vitreous china tanks and cast iron enameled tanks. The new prices are \$2.00 higher than those formerly quoted. There is also a slightly higher figure being quoted on white enamel and vitreous china tanks, the new quotation being \$18.90 instead of \$18.00 as formerly.

The balance of the list remains unchanged as shown below.

CLOSET COMBINATIONS—	Each
Oak, Wood Tank, Oak W. S. Seat and Cover	24 00
Oak Vitro Tank, Oak W.S. Seat and Cover	24 50
Oak Pussyfoot Tank, Oak W.S. Seat and Cover	24 00
Oak Wood Tank, Oak P.H., Seat and Cover	24 50
Oak Vitro Tank, Oak P.H. Seat and Cover	24 50
White Vitro Oak Woodstrip Seat and Cover	24 50
White, Pussyfoot Oak Woodstrip, Seat and Cover	25 50
White Pussyfoot, Woodstrip Seat and Cover	25 50
White Vitro Tank, Mahog., P.H. Seat and Cover	26 50
White Pussyfoot, Mahog., P.H. Seat and Cover	26 50
White Vitro or Pussyfoot, oak, P.H. Seat and Cover	26 00
Mahog. Pussyfoot, Mahogany P.H., Seat and Cover	27 00
Vitreous China Tank, Oak P.H., Seat and Cover	29 00.
Enam. Iron Tank, Oak P.H. Seat and Cover	28 75
Vitreous China Tank, Mahog., P.H. Seat and Cover	31 00
Enam. Iron Tank, Mahog., P.H., Seat and Cover	28 75

ADDITIONS OR REDUCTIONS ON ABOVE—	
If supplied less bend or offset, deduct..	0 50
If supplied with reverse trap bowl, add	1 50
If supplied with BOT Reverse Trap bowl Add.	2 25
If supplied with plain syphon jet bowl Add.	7 00
If supplied with N.P. stock cock on supply Pipe, Add	1 50
If supplied less brass and rubber floor flange and bolts, Deduct	0 60
If supplied less bend or offset, deduct..	0 50
If supplied less N. P. supply pipe deduct	0 70

CLOSET BOWLS—	
Washdown bowl with spud	10 60
Reverse trap bowl, with spud	12 10
Syphon jet bowl, with spud	17 00
"Richelieu" bowl	10 50

CLOSET TANKS—LOW DOWN—	
Oak wood, Tank and inside fittings with bend and supply	13 20
Mahog. Wood Tank, and inside Fittings with bend and supply	15 40
Oak Vitro or Pussyfoot Tank and inside Fittings with bend and supply	13 45
White Vitro or Pussyfoot Tank and Inside Fittings with bend and supply	13 40
White Enam. Tank F-585 or P.9262, or White Vitreous China Belmeade Tank with fittings (as above)	18 00

CLOSET SEATS—	
Oak Rich. Seat and Cover to wall	3 50
Oak Woodstrip Seat and Cover with bolts	3 50
Oak Woodstrip Seat less Cover with bolts	2 90
Oak Post Hinge Seat and Cover	3 85
Mahog. Fin. Post Hinge Seat and Cover	4 75

QUOTATIONS ON GASOLINE AND COAL OIL REDUCED

Toronto.
A satisfactory development has occurred in the gasoline and coal oil market during the week. New prices have been put in effect reducing gasoline by 2c per gallon and oil by 1c per gallon. Quotations now in effect are gasoline, 27c per gallon and Royalite oil, 20c per gallon.

WROUGHT NIPPLES ADVANCE IN PRICE

Toronto.
Wrought nipples are again advanced through a reduction of 5 per cent. in the discounts. The new discounts shown below became effective April 25th.

WROUGHT NIPPLES—
Close and short 4 in. and under 45 per cent.; 4½ in. and larger, 35 per cent.; Long 4 in. and under, 50 per cent.; 4½ in. and larger, 40 per cent.; running thread, 4 in. and under, 25 per cent.; Running thread long nipples, 20 per cent.

ENGLISH GALVANIZED SHEETS SLIGHTLY HIGHER

Toronto.
Quotations locally, on Queen's Head galvanized iron for import, have been slightly advanced. The new prices are about 50c per hundred pounds higher

than formerly and bring the base price up to \$8.00 per cwt. Some importers state that \$8.50 will be paid for this grade of sheets before the end of the year. Below is the list as quoted locally.

GALVANIZED SHEETS—	Premier and	Apollo
10½ oz.	6 90	7 40
U. S. 28 base	6 50	6 90
U. S. 26 base	6 30	6 60
22 and 24	6 05	6 45
18 and 20	6 05	6 30
16	5 90	6 15
12 and 14	5 75	6 00

	Queen's Head	
28 gauge, base	7 50	8 00
26	7 35	7 60
24	7 05	7 30
22	6 90	7 15
	Fleur de Lis	
28 gauge base	7 25	7 50
26	6 85	7 10
24	6 55	6 80
22	6 40	6 65

An extra 40c per 100 lbs. is charged for Key stone and Premier brands copper-bearing sheets. An extra is now charged on galvanized sheets 10½ oz. and 28 ga., when shipped out in sheets 3 feet wide. The extra charged over prices shown in 20c. per 100 pounds.

TANK STEEL PLATES—	
¼-in. and heavier, base	3 60
3-16 in.	3 95

BLUE ANNEALED SHEETS—	
10 gauge, base	4 50
12 gauge	4 55
14 gauge	4 60
16 gauge	4 65

BLACK SHEETS—	
18-20 gauge	5 25
22-24 gauge	5 30
26 gauge	5 35
28 gauge	5 50

A charge of 25c per 100 lbs. is made for less than case lots. An extra 10c. per 100 lbs. is also charged on sheets 26 in. wide.

CORRUGATED SHEET MARKET STEADY

Toronto.
There is a steady tone noted in the market on corrugated sheets. A gratifying improvement in sales in this line is reported, with the opening of the more seasonable weather. Average quotations locally are as follows:

CORRUGATED SHEETS—	Per 100 sq. ft.
No. 28 gauge	7 00
No. 26 gauge	7 50
No. 24 gauge	10 00
No. 22 gauge	12 50
No. 20 gauge	14 00
No. 18 gauge	19 00
Less 10 per cent.	
Lighter than 24 gauge and wider than 27 ins., 75 cents per square extra.	

SOIL PIPE AND FITTINGS REMAIN UNCHANGED

Toronto.
No developments have occurred in the soil pipe and fittings market, although the reports from primary sources have been firm for some time. The discounts shown below are those quoted locally.

SOIL PIPE AND FITTINGS—	
2 inch	Less 33 1-3%
3 inch	Less 33 1-3%
4 inch	Less 33 1-3%
5 and 6 inch	Less 33 1-3%
8 inch	Less 33 1-3%
FITTINGS—	
8 inch fittings	net.
2 to 6 inch	Less 45 per cent.

IRON PIPE PRICES REVISED TO HIGHER LEVELS

Toronto.
A complete new price list is in effect on all lines of iron pipe. Quotations at primary sources have been revised and the higher prices have been reflected on the local market. The new list is No. 59 dated April, 1923, and replaces list

No. 58 of February last. The new quotations are from 3 to 5 per cent. higher than former levels.

WROUGHT PIPE					April 24th, 1923.		
Price List No. 59.					Standard Butt Weld Pipe S/C per 100 feet.		
Size	Steel Blk.	Gen. Galv.	Wrot. Blk.	Iron Galv.			
½ in.	6.00	8.00					
¾ in.	4.32	6.30	7.56	9.60			
1 in.	4.32	6.30	7.56	9.60			
1 ¼ in.	5.53	6.97	7.82	9.35			
1 ½ in.	6.79	8.40	9.55	11.27			
2 in.	9.69	12.07	13.77	16.32			
2 ½ in.	13.11	16.33	18.63	22.08			
3 in.	15.68	19.53	22.28	26.40			
3 ½ in.	21.09	26.27	29.97	35.52			
4 in.	33.35	41.54					
4 ½ in.	43.61	54.32					
5 in.	56.12	69.00					
5 ½ in.	66.49	81.75					

Standard Lap Weld Pipe S/C per 100 ft.				
Size	Steel Blk.	Gen. Galv.	Wrot. Blk.	Iron Galv.
2 in.	24.42	29.60	33.30	38.85
2 ½ in.	36.27	44.46	50.31	59.09
3 in.	47.43	58.14	65.79	77.27
3 ½ in.	57.04	69.92	79.12	92.92
4 in.	67.58	82.84	93.74	110.09
4 ½ in.	78.74	96.52	1.14	1.33
5 in.	91.76	112.48	1.33	1.55
6 in.	1.19	1.45	1.73	2.02
7 in.	1.55	1.90	2.21	2.62
8 in.	1.63	2.00	2.33	2.75
9 in.	1.87	2.35	2.68	3.17
10 in.	2.31	2.83		
10 ½ in.	2.14	2.62	3.04	3.58
11 in.	2.76	3.38	3.91	4.61

RANGE BOILER PRICES HOLD AT RECENT REVISION

Toronto.
The prices on range boilers remain strong at the recently noted revision. The list shown below is well maintained on an active market.

RANGE BOILERS—	St'nd'rd	Ex. He'vy
5 gallon	8 77	
10 to 15 gallon	9 10	
18 gallon	9 75	
25 gallon	10 70	
30 gallon	11 35	13 13
35 gallon	13 30	15 38
40 gallon	14 80	17 06
52 gallon	21 70	28 50
66 gallon	39 50	45 56
82 gallon	48 10	55 50
100 gallon	66 95	77 25
120 gallon	76 05	87 75
144 gallon		122 50
168 gallon		140 25
192 gallon		157 50
EXTRAS—	Add	
For horizontal tapping	1 15	
1" Special for gas heater	1 00	
Each extra 3" tapping	3 00	
Each extra 2" tapping	1 75	

CEMENT PRICES UNCHANGED, MARKET IMPROVING

Toronto.
Quotations on cement show no changes from those which have been in effect for some time. Trading in this line is assuming heavier proportions with the opening of more seasonable weather.

CEMENT—	
Car lots, per barrel	3 45
Less car lots, per barrel, f.o.b. yard..	4 35
Per barrel, delivered	4 55
Single bags, 1.15 each, 4 bags to barrel.	
Extra charge of \$1.50 per load on less than 24 bag lots.	
Rebate of 20c. each for empty bags.	

NO CHANGE IN PRICE OF RANGE BOILER STANDS

Toronto.
Range boiler stands show no change since the recent revision in prices. The following quotations are well maintained.

BOILER STANDS—	
Each—5 gal. \$1.50; 12 gal. \$1.50; 18 gal. \$1.50; 25 gal. \$1.50; 30 gal. \$1.50; 35 gal. \$1.65; 40 gal. \$1.90; 52 gal. \$2.10; 66 gal. \$2.35; 82 gal. \$2.50; 100 gal. \$3.80; 120 gal. \$4.00; 144 gal. \$4.00; 168 gal. \$4.00; 192 gal. \$4.00; Adjustable	
Stands 12 to 14 inch 60c.	

Most men prefer shower-baths.

**Give them what they want, and
make them happy!**

***The New MUELLER
Tub Shower Faucet***

gives every plumber something to sell those who already have bath-rooms, as well as to those installing them.

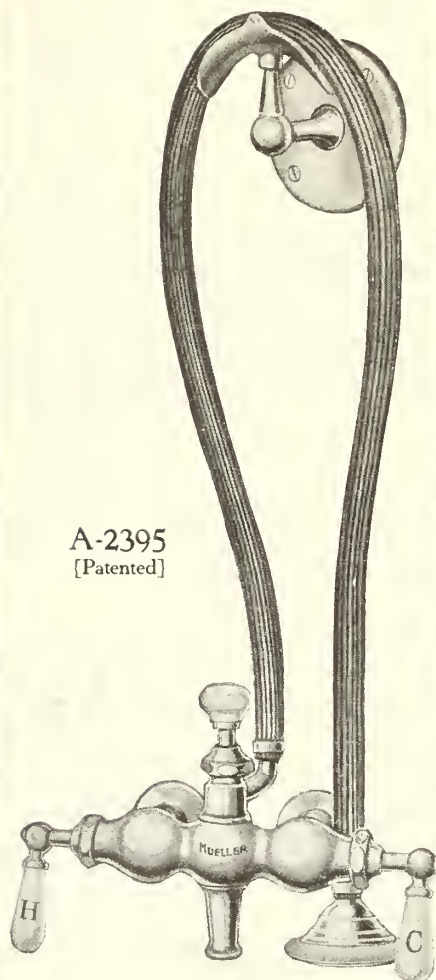
It combines the features of the ordinary bath cock with the advantages of the modern shower-bath. The five-foot hose is permanently attached to the cock. Hot, cold or tempered water can be drawn either from spout or spray, as needed.

It will pay you to install A-2395 on a sample tub and display it in your show window and in your shop. It sells on sight and nets you a handsome profit.

**H. MUELLER MFG. CO., Limited,
Sarnia, Ontario**

Water, Plumbing and Gas Brass Goods and Tools
American Factory at Decatur, Illinois, U. S. A.
Branches, New York and San Francisco

Mueller Metals Co., Port Huron, Mich., Makers of
"Red Tip" Brass Rod; Welding Rod; Brass and
Copper Tubing; Forgings and Castings in Brass
and Bronze; also Brass Screw Machined Products.



A-2395
[Patented]

GAS RANGES HIGHER IN PRICE

Toronto.

Some higher quotations are in evidence on gas ranges on the local market. There is no announcement made as to gas water heaters but the market in this line is decidedly firm.

PLUMBERS' BRASS GOODS HOLD FIRM IN PRICE

Toronto.

No changes have occurred in quotations on plumbers' brass goods since the revision of February. The list shown below continues in effect on the better-known lines.

BRASS GOODS—

No. 3825 Compression, complete with tails	3 75
No. 4 Std. Comp. Double Bath. No. 3829 F	4 46
Ditto with China Index, No. 3830F.....	4 92
Quick Opening—	
Brass handle on top, No. 3850 F.....	4 90
China handle on top, No. 3850 F.....	5 52
Brass handle on side, No. 3851F.....	4 95
(less Jewell's cup)	
China handle on side No. 3852 F.....	5 45
(less Jewell's cup)	
No. 4 1/2 Fuller, brass handle, No. 3862...	6 48
A2395 Mueller type Shower Faucet.....	9 25
3/8 in. N. P. Brass Supply Pipes.....pair	2 20
1/2 in. N. P. Brass Supply Pipes.....pair	2 30
1/2 in. Galvanized Iron Nickle Plated Supply Pipes.....pair	1 75
1 1/4 or 1 1/2 Overflow and Waste, 19 gauge, N. P. on rough.....	3 20
1 1/2 T.B.L. Overflow and Waste, 19 gauge, N. P. on the rough.....	4 15

LAVATORY FITTINGS—

Riley Basin Cocks China Index, per pair	7 00
Riley Jr. Basin Cocks, China Index, per pair.....	6 00
Adanac Basin Cocks, Brass Handle, No. 3632, per pair.....	4 63
Adanac Basin Cocks, China Handle, No. 3635, per pair.....	5 20
Quick Opening Basin Cocks, Brass Hdle. No. 3630, per pair.....	3 70
Quick Opening Basin Cocks, China Handle, No. 3633, per pair.....	4 28
Fuller No. 0 Basin Cocks, Brass Handle, No. 3650, per pair.....	4 10
Fuller No. 0 Basin Cocks, China Handle No. 3651, per pair.....	5 04
Midget No. 0 Basin Cocks, No. Index, No. 3623 per pair.....	3 14
Midget No. 0 Basin Cocks, With Index, No. 3623, per pair.....	3 45
3/8 in. N.P. Brass supplies to wall or floor	2 20
3/8 in. Galvd. supplies N. P.....	1 80
1 1/4 in. N.P.S. Traps to floor No Vent 20G No. 4458.....	3 46
1 1/4 in. N.P.S. Traps to floor with Vent 20G No. 4462.....	4 53
1 1/4 in. N.P.P. Traps, No Vent 20G No. 4450.....	2 74
1 1/4 in. N.P.P. Traps No Vent Toronto By-law No. 4450.....	2 97
1 1/4 in. N.P.S. Traps with Vent Toronto By-law No. 4462.....	4 98
1 1/2 in. N.P.S. Traps with Vent Toronto By-law No. 4462.....	6 67
2 in. N.P.S. Traps with Vent Toronto By-law No. 4462.....	14 00
Patent Overflow basin plugs.....	0 71
Pop up waste.....	5 00
Unique waste China Knob.....	5 50
Unique waste China Index.....	5 00
1 1/4 in. Deep Seal Trap No Vent.....	3 75
1 1/2 in. Deep Seal Trap No Vent.....	6 00
1 1/4 in. Elliptic Trap.....	6 50
1 1/2 in. Elliptic Trap.....	9 00
Whirlpool N.P. Traps list prices less.....	15%
1/2 in. Lever Handle, Stop and Waste, solid key, No. 3969.....	0 83
1/2 in. Lever Handle, Stop and Waste, pin cheek, lose key, No. 4032.....	1 04
1/2 in. Lever Handle, Stop and Waste, pat. cap. loose key, No. 4044.....	1 21
1/2 in. Boiler Drain Cocks 3571.....	0 80

BOILER TUBE PRICES REMAIN FIRM AND UNCHANGED

Toronto.

The boiler tube market continues to hold at the levels shown below. The undertone of this market has been firm for some time and some advances have been made in quotations at primary sources. These, however, have not yet been reflected locally but a revision in

the price of this line would cause no surprise.

BOILER TUBES—

Size	Seamless.	Lapweld
3/4 inch.....	\$19 00	\$.....
1 inch.....	20 00	.....
1 1/4 inch.....	22 00	.....
1 1/2 inch.....	24 00	.....
1 3/4 inch.....	24 00	23 00
2 inch.....	22 00	19 00
2 1/4 inch.....	24 00	21 50
2 1/2 inch.....	27 00	23 50
3 inch.....	34 00	28 50
3 1/4 inch.....	36 00	33 00
3 1/2 inch.....	38 00	33 00
4 inch.....	50 00	42 00

ENAMELED WARE PRICES UNCHANGED

Toronto.

There is no change in quotations on enameled ware from the list which has governed this line for some time. Good sales are becoming more evident at the following prices:

ENAMELED WARE—

Enameled Iron Baths, 3" roll rim, 4 ft., 4 ft. 6 in., 5 ft.....	51 40
Do., 5 1/2 ft.....	57 10
Lavatories—	
17x10" Apron F139 or P4045.....	15 30
18x24" Apron F154 or P3845 or P3847.....	23 60
18x21" Apron F169 or P4205.....	17 60
18x21" Roll Rim, F197, F199 or P4655-6.....	15 40
17x19" Roll Rim, F241 or P4345.....	12 60
Sinks, Roll Rim, 16x24 in.....	18 40
Do., 18 x 30 in.....	23 00
Do., 20 x 30 in.....	24 70
Sinks, Flat Rim—.....	3 only 2 only 1 only
16x24.....	\$7 60 \$7 70 \$7 80
18x30.....	8 50 8 60 8 70
20x30.....	9 70 9 80 9 90
List less 30 per cent.	

RADIATORS AND BOILERS FIRM AT RECENT REVISION

Toronto.

The recent revision in quotations on boilers and radiators is still in effect. There is a slight improvement noted in trading in this line during the week.

RADIATORS AND BOILERS—

Revised radiator list prices are for 1, 2, 3, 4 and 5-column radiators per square foot.	
38 in., \$1: 32 in., \$1.10; 30 in., \$1.15; 26 in., \$1.20; 23 in., \$1.26; 22 in., \$1.30; 20 in., \$1.36; 18 in., \$1.40; 16 in., \$1.50; 14 in., \$1.55; 13 in., \$1.60.	
Discount on 2, 3, 4 and 5 column standard sizes, 44 per cent. for water and 45 per cent. for steam.	
Discount on 1-column standard size, and 2, 3, and 4-column hospital sizes 36 per cent. for water and 37 per cent. for steam.	

Wall radiators—5 ft., \$1.15; 6 ft., \$1.10; 7 ft., \$1.05; 9 ft., \$1.05; 12 ft., \$1.05. Discount 41 per cent.

BOILERS—**Water:**

Round 52 per cent. off list. Square 8 per cent. off list.

Steam:

Round, 13 per cent. off list; Square, list plus 7 per cent.

ASBESTOS PRODUCTS MARKET STRONG

Toronto.

While there are no changes in quotations on asbestos products, there is a distinctly firm undertone to the market in primary sources. The following quotations continue in effect on this line:

ASBESTOS PRODUCTS—

Pipe Covering—	
Air cell, 4 ply.....	50 per cent. off list
Air cell, 3 ply.....	55 per cent. off list
Air cell, 2 ply.....	57 1/2 per cent. off list
Boiler Covering.....	\$1.50 — \$2.00 per bag.
Asbestos Sheathing.....	\$8.25 \$9.00
Magnesia pipe covering.....	less 40 per cent.
Magnesia pipe covering, small lots, less 35 per cent.	

COTTON WASTE PRICES FIRM AND UNCHANGED

Toronto.

There is no further change in quotations on cotton waste locally. Spring trading in this line has shown considerable improvement during the last week. Following is the list of prices being quoted on the different grades locally.

COTTON WASTES—

Cream, polishing.....	0 24
White, XXX.....	0 21
XX.....	0 13
X.....	0 17
XC.....	0 15 1/2
XXX extra.....	0 20
X, grand.....	0 13 1/2
XLCR.....	0 17
X, Empire.....	0 15 1/2
X, press.....	0 14
Colored, No. 1.....	0 14 1/2
No. 17.....	0 14 1/2
No. 1A.....	0 13 1/2
No. 1B.....	0 11 1/2
Fancy.....	0 15 1/2
Lion.....	0 14
Standard.....	0 12 1/2
Popular.....	0 10 1/2
Keen.....	0 08 1/2
Above lines subject to trade discount for quantity.	

Winnipeg Markets

WINNIPEG, April 28.—Plumbing and steamfitting lines are moving upward. The feature has been the advance on galvanized range boilers as well as on galvanized sheet iron, blued Canada plate and steel sheets. Conductor pipes and eave troughs have shown an advance also. Brass ferrules, ball cocks and bibb washers show an upward tendency. Rubber diaphragms for steam boilers are quoted at higher levels. A few lines, however, have shown a slight decline, such as tap plugs, trap screw cleanouts, cast iron traps, soldering nipples and unions and also range boiler stands.

BRASS FERRULES AT HIGHER LEVELS

Winnipeg.

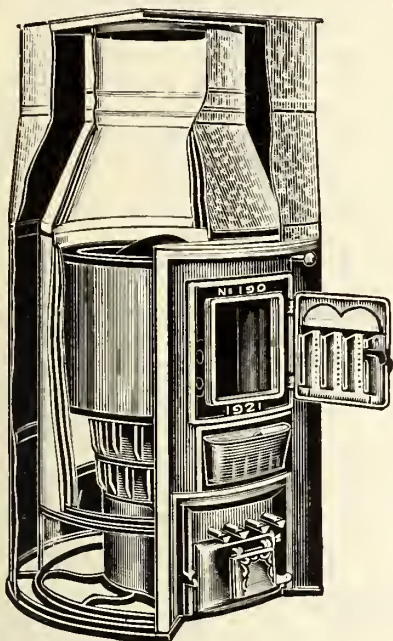
Higher quotations are in effect on brass soil pipe ferrules. Straight 2-inch are quoted at 45c, 3-inch at 60c, and 4-inch at 70c. Bent are quoted at \$1 for 3-inch and \$1.30 for 4-inch.

RUBBER DIAPHRAGMS AT HIGHER LEVELS

Winnipeg.

There is a slight advance in quotations on low pressure rubber diaphragms for steam boilers. 6-inch is quoted at 70c, 7-inch at 90c, 8-inch at \$1.10, 9-inch \$1.20, and 10-inch at \$1.40 each.

Banner Pipe Furnace
Banner Pipeless Furnace
Banner Pipeless Wood
Furnace.



Banner Pipeless Furnace

Banner "Pipeless" Owners Obtain Double Satisfaction at Lower Cost

Owners of Banner Pipeless Furnaces are delighted with its unusual heating capacity; they are enthusiastic over its surprising fuel economy.

They are obtaining thorough heating comfort at but the fractional cost of a steam or hot-water system.

Within your radius are small homes, farm houses churches and schools, a great many still using the unsatisfactory stove. Turn these prospects into a source of real profit by installing Banner Furnaces.

A "Banner" installation means a generous profit undisturbed by service and repair calls.

Write to-day for attractive agency proposition.

The Galt Stove & Furnace Co.
Limited
Galt - Ontario

KERR VALVES

No Weakness at Any Point



No. 34

Attention has been given, in the designing of this Valve, to the strains attending the connecting up of such valves, ample metal being provided where these strains usually come.

They are exceptionally well finished and plated, mounted with the best quality black wood wheels, and fitted with the "Radium Disc," insuring the utmost of service and satisfaction to the user. Each valve is thoroughly tested and packed before shipment.

When you order, ask for KERR RADIATOR VALVES always, and you will always get a good valve.

The **KERR ENGINE COMPANY**
LIMITED

WALKERVILLE

Valve Manufacturers

ONTARIO

CONDUCTOR PIPE AND EAVES- TROUGH AT HIGHER LEVELS

Winnipeg.

An advance of practically ten per cent. has been recorded on conductor elbows, conductor shoes, eavestrough mitres, conductor pipes and eavestroughs. The following prices are in effect at present.

CONDUCTOR ELBOWS—

Round or Corrugated—	
Size 2 inch, per dozen	2 34
Size 3 inch, per dozen	2 61
Size 4 inch, per dozen	4 14
Size 5 inch, per dozen	4 14
Size 5 inch, per dozen	10 80
Size 6 inch, per dozen	12 60

CONDUCTOR SHOES—

Per dozen—2 inch \$2.88; 3 inch \$3.38; 4 inch \$5.04; 5 inch \$12.15; 6 inch \$13.95.

EAVE TROUGH MITRES—

Each—Size 8 inch 36c; 10 inch 45c; 12 inch 54c; 15 inch 60c.

CONDUCTOR PIPES—

Per 100 feet—Size 2 in. \$7.43; 3 in. \$8.55; 4 in. \$10.80; 5 in. \$15.30.

EAVE TROUGH. O. G. Square Bead—Per 100 ft. Size 8 inch \$6.08; 10 in. \$6.75; 12 in. \$8.10; 15 in. \$11.25.

Half round troughing, per 100 feet—8 in. \$6.50; 10 in. \$7.20; 12 in. \$8.55; 15 in. \$12.15.

BALL COCKS AT HIGHER LEVELS

Winnipeg.

Higher quotations are in effect on Jackson's ball cocks without floats. Number 898½ is quoted at \$1.85 each.

BIBB WASHERS AT HIGHER LEVELS

Winnipeg.

Bevelled and flat bibb washers have shown an advance and the latest quotations are as follows:

BIBB WASHERS—Bevelled—

Per 100—Size ¾ in. \$2.60; 1½ in. \$2.60; ¾ in. \$2.75; ¾ in. \$3.25.

Bevelled Bibb Washers Flat—Red—Per 100—Size ¾ in. \$1.60; 1½ in. \$1.75; ¾ in. \$2.00; ¾ in. \$2.40; 1 in. \$2.50.

ANOTHER ADVANCE ON GALVANIZED RANGE BOILERS

Winnipeg.

Due to the advancing tendency of raw materials another advance has been registered on the local market on galvanized range boilers and the following sizes are quoted as follows:

RANGE BOILERS—Galvanized

Each—18 gallons, \$11.00; 30 \$12.50; 35 \$15.00; 40 \$16.30; 52 \$27.20; 66 \$43.50; 82 \$52.90; 100 \$73.65; 120 \$83.60.

Extra Heavy 30 gallon, each \$14.10.

SHEET IRON AND CANADA PLATE AT HIGHER LEVELS

Winnipeg.

The strong tone of primary markets has been reflected in an advance on galvanized sheet iron, Canada blue plate and black steel sheets. Latest quotations are as follows:

SHEET IRON—Galvanized—

16 gauge \$8.10; 18 gauge \$8.25; 20 \$8.25; 22 \$8.40; 24 \$8.40; 26 \$8.55; 28x30 \$8.85; 28x36 \$9.15; 10¾x30 \$9.25; 10¾x36 \$9.55.

CANADA PLATE—Blued—

18 gauge x 21 \$7.50; 18x24 \$7.50; 20x28 \$7.50.

SHEET STEEL—Black—

10 gauge \$6.20; 12 \$6.20; 14 \$6.35; 16 \$6.40; 18 \$7.00; 20 \$7.00; 22 \$7.05; 24 \$7.05; 26 \$7.10; 28 gauge x 30 \$7.20; 28x36 \$7.35.

DECLINE IN TAP PLUGS

Winnipeg.

There is a slight decline in quotations on tap plugs used for repairing leaks in boilers, radiators, iron pipe fittings, etc.

The following sizes are quoted as follows:

TAP PLUGS—Per dozen—

Size ¼ in. \$2.40; 5-16 in. \$2.58; ¾ in. \$2.72; 7-16 in. \$3.10; ½ in. \$3.27; 9-16 in. \$3.85.

LOWER PRICES ON CLEANOUTS

Winnipeg.

Trap screw cleanouts show a slight reduction and 4-inch is quoted at 72c each, 5-inch at \$1.40 and 6-inch at \$1.70.

CAST IRON TRAPS AT LOWER DISCOUNTS

Winnipeg.

There has been a revision in discounts on cast iron traps and fittings. Adjustable bath traps, sink traps, non-siphon traps are quoted at list price less 20 per cent. Cast iron fittings and closet bends are quoted at the same discount.

SLIGHT DECLINE IN NIPPLES AND UNIONS

Winnipeg.

Soldering nipples and unions for lead and iron pipe show a slight decline. Latest quotations are list price less 47 per cent.

RANGE BOILERS STAND SLIGHTLY LOWER

Winnipeg.

Lower prices are recorded on range boiler stands and latest quotations on the following sizes are as follows:

RANGE BOILER STANDS—

Each—Size 12 in. \$1.80; 13 in. \$2.05; 14 in. \$2.25; 16 in. \$2.45; 18 in. \$2.65; 20 in. \$3.74; 22 in. \$4.05; 24 in. \$4.45.

SOIL PIPE TESTING PLUGS AT HIGHER LEVELS

Winnipeg.

Soil pipe testing plugs show a slight advance. Two inch is quoted at \$1.05 each. Three inch at \$1.45, four inch at \$2.00, five inch at \$2.55 and six inch at \$3.00.

THIS IS THE AGE OF GAS

Continued from page 21)

out of 48 operating plumbers in the city of Arlington, 30 were co-operating with the gas company.

Now, fellow craftsmen, if our brothers-in-arms over the line can work out plans that will create bigger and better business for themselves, what is there to hinder us from so doing? As a matter of fact, the first lesson of all to learn is the value of gas as a fuel, the value of gas appliances from a service point of view, and the creating of a "get-together spirit" between all parties concerned.

(To be continued)

ACCOUNTING SYSTEM

(Continued from page 19)

office, and the contents are then entered on the original order by the foreman when the man and helper returns. This is then forwarded to the office for the necessary charge entry. When it reaches the hands of the bookkeeper he enters it on a statement form which is

then filed in a ledger system. The entry calls for the order number, and reference can always be made to the order slip as the number is copied to the statement. If a complaint is at any time made by the customer, details are always obtainable by referring to the order, or further back, to the "material wanted" slip is necessary.

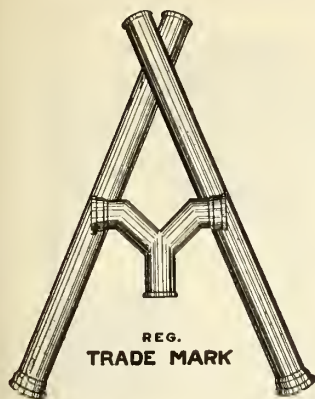
"We have tried various methods in an endeavour to keep track of the continuous passing of material from the store to the customers' hands, but find this system the best and most accurate that we have ever adopted. In a business of this kind it is very hard to keep a close check, and very easy for leaks to occur, because of different men using so many different kinds of material. If a journeyman plumber does not mark down the goods he uses on the spot some of the items are often overlooked, particularly the smaller items, considered less important, but which amount to a good sum week in and week out," concluded Mr. Wilson.

ONTARIO GOVERNMENT

(Continued from page 16)

ment is of the honest opinion that such educational work will be of real value to the farmer and his wife and family. It no doubt will be, but the plumbing trade should realize this too; take advantage of the movement and lend their aid in a practical manner. The craft can group themselves in such a manner as to be able to cater to the farmer and his needs at as low a possible cash cost as possible, because there can be no doubt about it, the goods supplied will be half sold. Selling cost these days plays a very large part in the cost of conducting one's business. Therefore, goods half sold as a result of this big educational campaign should result in lower cost of installation.

The secret of a nation's greatness lies in having a happy, contented and prosperous farming population, and the writer is firmly convinced that taking all in all, our farmer population in Canada have not been rewarded as they deserve. It is up to us, we who live in large towns and cities, to take a little more interest in the welfare, the health, the happiness and prosperity of the farmer, that great big populace who from year end to year end are producing our food and clothing, the very essentials of life. It is the duty of every member of the craft, a duty and an opportunity to make life more comfortable for the farmer and his wife and family, and make a fair profit in the performing of the duty. As stated earlier in this article, no other industry that the writer is aware of has ever had such good work performed for it by this splendid movement which is being carried on so that our rural and farm population shall be taught to realize how very necessary are city conveniences on the farm.



USE

TESTED Soil Pipe

IT COSTS NO MORE AND YOU KNOW THE JOB IS RIGHT

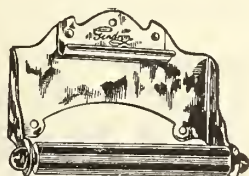
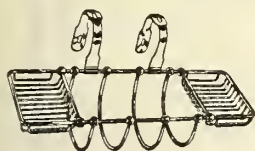
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FORWELL FOUNDRY, LTD.

KITCHENER, ONT.

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This year YOU can make a lot of extra money by keeping an attractive display of a fairly wide range of



Bathroom Fittings and Hardware Specialties constantly before your customers.

Write us for Catalogue "G"

The Gendron Mfg. Co., Ltd.

Duchess Street, Toronto



A Word About Cleanout Doors

You and I know that clean flues mean coal saving, and the easier cleaned, the oftener cleaned. That's why each Burnham Boiler flue has its own separate cleanout door. Any flue can be cleaned at any time, regardless of how big or little the fire is.

Write us for complete information.

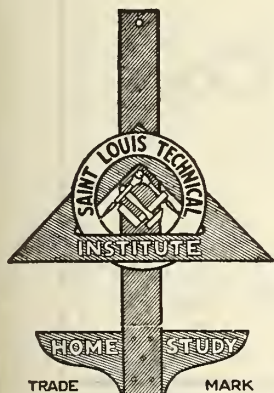
Lord & Burnham Co. Limited

(Boiler Department)

Harbor
Commission
Bldg.,
Toronto



Factory:
St. Catharines,
Ontario



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Fan Heating and Ventilating Engineering is the pinnacle of all other forms of heating, and of all branches of steam fitting and sheet metal work. It prepares you for:

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When Does a Paper Really "Reach" You?

1.

Advertisers of the present day are continually having impressed upon them the large number of readers "reached" by this or that medium.

Altogether too much stress is laid upon the number reached; insufficient importance is attached to the manner of reaching them.

As you pass along the street a handbill is thrust upon you. You take it, glance at it, and in all probability immediately throw it away. That advertisement has undoubtedly reached you, but has it reached you in the manner in which you would like your own advertisement to reach the customers you are aiming to get?

It is this question of how people are reached that is really the important one for the advertiser to consider. It is useless "reaching" a large number if you reach them at an unsuitable time and under conditions in which your advertisements will have no effect; everything depends upon the nature of the contact. If this were not so you might as well save the expense of sending out salesmen and send out messenger boys instead. They would "reach" your clients. But you send out a salesman because a salesman is something more than mere flesh and blood. He can do your work more effectively than the messenger boy.

In the same way a publication is more than mere paper and ink. If it is the right kind of publication it is just as far ahead of the handbill or other unsuitable medium for carrying your message as the salesman is ahead of the messenger boy. It will do your work far more effectively.

This is the first of three talks designed to show you how you can satisfy yourself that the medium you choose can not only reach, but reach effectively, and under the most favorable conditions, the man whom you wish to secure as a client.

Look out for No. 2 in our next issue.

The MacLean Publishing Co.

143-153 University Avenue, Toronto

Publishers of:

The Financial Post
Canadian Grocer
Hardware and Metal
Dry Goods Review
Men's Wear Review

Bookseller and Stationer
Canadian Machinery
Canadian Foundryman
Druggists' Weekly
Power House

Canadian Shipping
Printer and Publisher
Sanitary Engineer
Canadian Automotive Trade

RADIATOR HANGER

YOU'LL USE 'EM YET!



Advantage No. 1.

The only hanger adjustable for both height and lateral positions.

For ANY style radiator;
ANY type wall construction.

Write for the whole
list of their advantages

Healy-Ruff Co.

Dept. 23, Minneapolis, Minn.

CHRISTIE UNIT SYSTEM SEPTIC TANKS

Convenience for ALL. Thousands of homes can be modernized. Any place where there is NOT a Public Sewer CHRISTIE'S UNIT SYSTEM SEPTIC TANK is the only correct method of disposal.

HEALTHY, CONVENIENT, ECONOMICAL

Made of Reinforced Concrete. Can be shipped anywhere. Easy to install. Low in price. Both syphon and overflow type. No job too small. None too large. We have a type for both heavy and light soils.

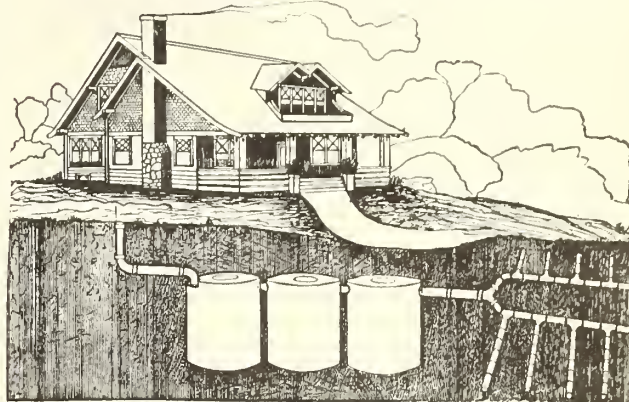
HOMES, SCHOOLS and SUMMER HOUSES.

Write for catalogue and dealers' price list.

Manufactured By

Christie Concrete Products Co.

Lindsay, Ontario



PATENTED

A Suggestion

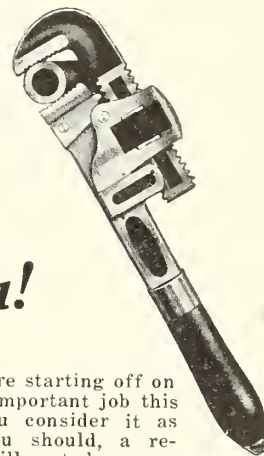
"Medium Weight soil pipe has a round bead pattern at the hub to distinguish it readily from the Extra Heavy weight pipe which has a flat bead pattern.

This is only a matter of design, one being as strong as the other.

We respectfully suggest the advisability of continuing the excellent practice of invariably specifying medium weight pipe in the round bead pattern."

TORONTO HARDWARE MFG.,
CO., LIMITED

Take a TRIMO with you!



Probably you are starting off on your way to an important job this morning. If you consider it as important as you should, a reliable wrench will not be overlooked as one of your necessities.

And a "Trimo" is what you need.

The Wrench with the Steel Frames, Nut Guards, and insertable jaw in handle. Made with Wood Handles in 6", 8", 10", 14" sizes.

Made with Steel Handles in all sizes.

Trimont Manufacturing Company

55-71 Amory Street

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Canada Metal Co., Ltd., Toronto.

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Empire Mfg. Co., Ltd., London and Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
J. H. Williams Co., Brooklyn, New York.
United Brassfounders & Engineers, Ltd., Manchester, Eng.
Wallaceburg Brass & Iron Mfg. Co., Ltd., Wallaceburg, Ont.
Wolverine Ltd., Toronto, Ont.

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Gendron Mfg. Co., Toronto.

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BOILER FEED PUMPS

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Fittings, Limited, Oshawa.

BOLTS, EYE

J. H. Williams & Co., Brooklyn, N. Y.

BOLTS AND NUTS

Fittings Limited, Oshawa.

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Canada Metal Co., Ltd., Toronto.
C. A. Dunham Co., Ltd., Toronto.
Empire Mfg. Co., Ltd., London and Toronto.
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Galt Brass Co., Limited, Galt.
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Wallaceburg Brass & Iron Mfg. Co., Ltd., Wallaceburg, Ont.
Wolverine Ltd., Toronto, Ont.
W. H. Cunningham & Hill, Ltd., Toronto

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Canada Metal Co., Ltd., Toronto.
Empire Mfg. Co., Ltd., London and Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
United Brassfounders & Engineers Ltd., Manchester, Eng.
Wolverine, Ltd., Toronto, Ont.

CASTINGS

Canada Metal Co., Ltd., Toronto.
Fittings, Limited, Oshawa.

CELLAR DRAINERS

Galt Brass Co., Limited, Galt.
Empire Mfg. Co., Ltd., London and Toronto.
James Morrison Brass Mfg. Co., Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
Standard Sanitary Mfg. Co., Ltd., Toronto, and Hamilton.

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J. H. Williams & Co., Brooklyn, N. Y.
Grant E. Cole Co., 23 River Street, Toronto.

CHAINS

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J. H. Williams & Co., Brooklyn, N. Y.

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Empire Mfg. Co., Ltd., London and Toronto.
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Standard Sanitary Mfg. Co., Ltd., Toronto, Hamilton.
Steel Trough & Machine Co., Ltd., Tweed, Ont.

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J. E. Farrell, 210 Galley Ave., Toronto, Ont.
Smart Turner Machine Co., Ltd., Hamilton, Ont.
The Westco Pumps, Limited, Toronto.
Grant E. Cole Co., 23 River Street, Toronto.

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H. Mueller Mfg. Co., Sarnia, Ont.
Smart Turner Machine Co., Ltd., Hamilton, Ont.

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Fittings Limited, Oshawa.

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C. A. Dunham Co., Ltd., Toronto.

DRAINAGE FITTINGS

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Fittings Limited, Oshawa.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
Standard Sanitary Mfg. Co., Ltd., Toronto, Hamilton.
United Brassfounders & Engineers, Ltd., Manchester, Eng.
Warden King, Ltd., Montreal.

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W. H. Cunningham & Hill, Ltd., Toronto.
Hercules Chemical Co., Inc., New York City.

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H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
Standard Sanitary Mfg. Co., Ltd., Toronto, Hamilton.

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Kerr Engine Co., Walkerville.
United Brassfounders & Engineers, Ltd., Manchester, Eng.

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Canada Metal Co., Ltd., Toronto.
Empire Mfg. Co., Ltd., London and Toronto.
Galt Brass Co., Limited, Galt.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
Standard Sanitary Mfg. Co., Ltd., Toronto, Hamilton.
Port Hope Sanitary Mfg. Co., Ltd., Port Hope
Standard Sanitary Mfg. Co., Ltd., Toronto.

ELECTRIC PUMPING MACHINERY

Empire Mfg. Co., Ltd., London and Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
Smart Turner Machine Co., Ltd., Hamilton, Ont.

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Toronto Hardware Mfg. Co., Ltd., Toronto.

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Canada Metal Co., Ltd., Toronto.
Empire Mfg. Co., Ltd., London and Toronto.
Fittings Limited, Oshawa.
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H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
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Standard Sanitary Mfg. Co., Ltd., Toronto, Hamilton.
Wolverine Ltd., Toronto, Ont.

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W. H. Cunningham & Hill, Ltd., Toronto.
Fittings, Limited, Oshawa.
Wolverine Ltd., Toronto, Ont.
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Hamilton Stove & Heater Co., Hamilton.
Burrow, Stewart & Milne, Hamilton.
Hall-Zryd, Hespeler, Ont.
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GAS WATER HEATERS

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Smart Turner Machine Co., Ltd., Hamilton, Ont.
Warden King, Ltd., Montreal and Toronto.
W. H. Cunningham & Hill, Ltd., Toronto.

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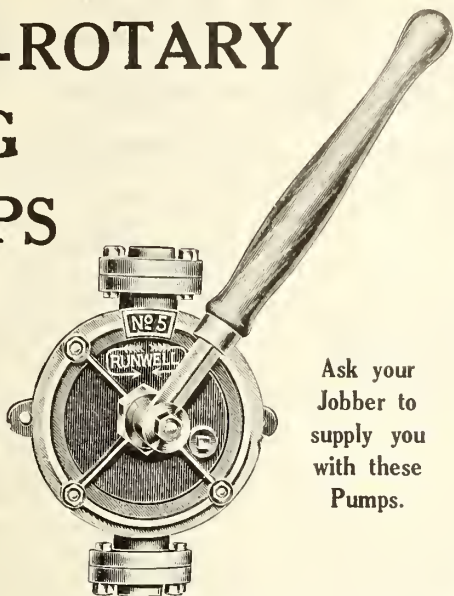
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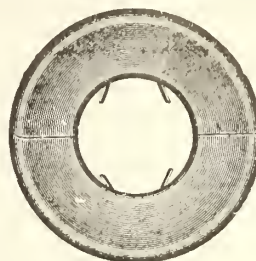
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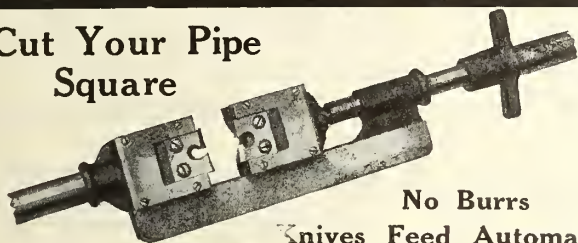


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Pipe Cleaner
NET WEIGHT 15.02
Manufactured by
THE CHAMBERLAIN COMPANY
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Fittings, Limited, Oshawa.

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 Empire Mfg. Co., London and Toronto.
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 Steel Trough & Machine Co., Ltd., Tweed, Ont.
 The Westco Pumps Limited, Toronto.
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 Smart Turner Machine Co., Ltd., Hamilton, Ont.
 The Westco Pumps, Limited, Toronto.
 Beaton & Cadwell Mfg. Co., New Britain, Conn.

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 Lord & Burnham Co., Ltd., Toronto.
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RADIATOR HANGERS

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 chester, Eng.

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 The Canadian John Wood Mfg. Co., Toronto.
 Toronto Hardware Mfg. Co., Toronto.

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Steel Trough & Machine Co., Ltd., Tweed, Ont.

SYSTEMS—SCHOOL

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 United Brassfounders & Engineers Ltd.,
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 Steel Trough & Machine Co., Ltd., Tweed, Ont.
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But you don't know.

A Bank might be honest and efficient without Government inspection.

But you don't know.

A business concern may be absolutely responsible without a commercial rating.

But you don't know.

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Better be sure.

The circulation of Sanitary Engineer, Plumber and Steamfitter of Canada is verified by the A.B.C. Sanitary Engineer, Plumber and Steamfitter of Canada is the only Plumbers' Journal in Canada that will supply an A.B.C. Audit.

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Advertisements under this heading 3c per word for first insertion; 2c for each subsequent insertion.

Where answers come to Box number in our care to be forwarded, 5 cents extra per insertion must be added to cover postage, etc.

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Following natural laws, this is accomplished with a minimum of mechanical equipment.

There are no traps on radiator returns.

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The Farrfhern is a System that eliminates Troublesome come backs, it will create mutual satisfaction.

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Sales Representative, 304 Manning Chambers, Toronto.

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Are you looking for help?
Business for sale or to buy?
A position or an agency?
Have you anything to sell?

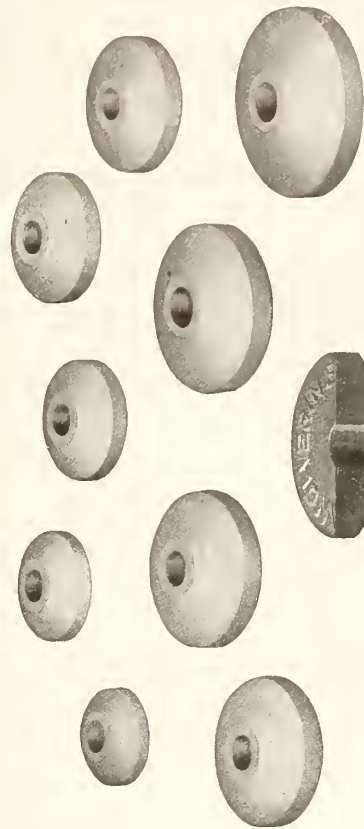
Any of these wants may be taken care of at small cost through the medium of Sanitary Engineer Want Ad. columns.

Read the Want Ad. Page

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Wolverine Bibb Washers are Better



Seven Lines

Nine Sizes
in
Each Line

Asbestos
Base

Graphite
Base

Pure Rubber

Fibre

Leather



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or
Fibre

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More permanent
Cost less



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CANADA



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Selling
Value
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Canadian Tube and Steel Products Co., Ltd.

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Works at Lachine Canal, Montreal

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Agents :

Ontario :

Monarch Brass Mfg. Co.
71 Brown St., Toronto

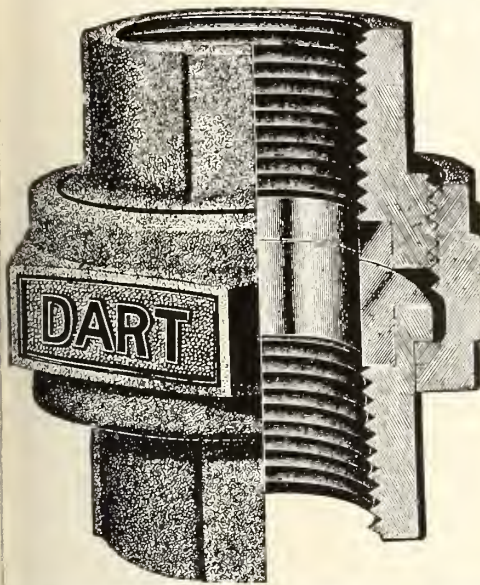
Manitoba and Northwest :

E. B. Plewes
197 Princess St., Winnipeg

BRONZE TO BRONZE

One of The Many Features That Go To
Make For Lasting and Dependable Service

DART UNIONS



Make a joint that is proof against deterioration. A joint that will never loosen up and leak. Their permanent efficiency is due to the non-corrosive Bronze Face and Seat and the Heavy Malleable Iron Pipe Ends and Nut which will not stretch or pull apart under heavy pressure or strain. They ensure a Leak-Proof Service which leaves no loopholes for complaints.

Your Jobber Sells Them

Dart Union Co., Limited, Toronto

Sell City Conveniences

Those who live in the Country are rapidly learning how easily and cheaply they may have City Conveniences—fresh running water in their kitchens, stables and barns, water-flushed toilets in their houses, by installing Fairbanks-Morse Water Systems.

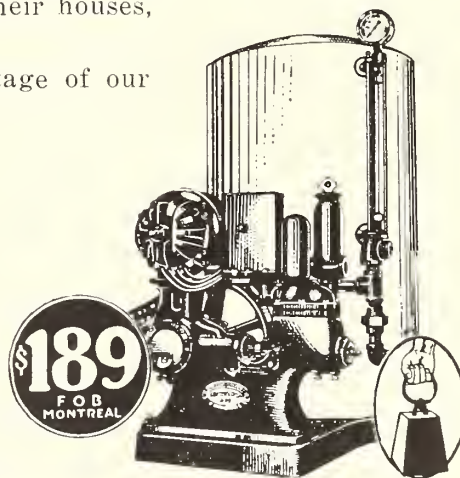
Here is an exceptional opportunity for you to take advantage of our National Advertising of these simple dependable Plants.

FAIRBANKS-MORSE Water Systems

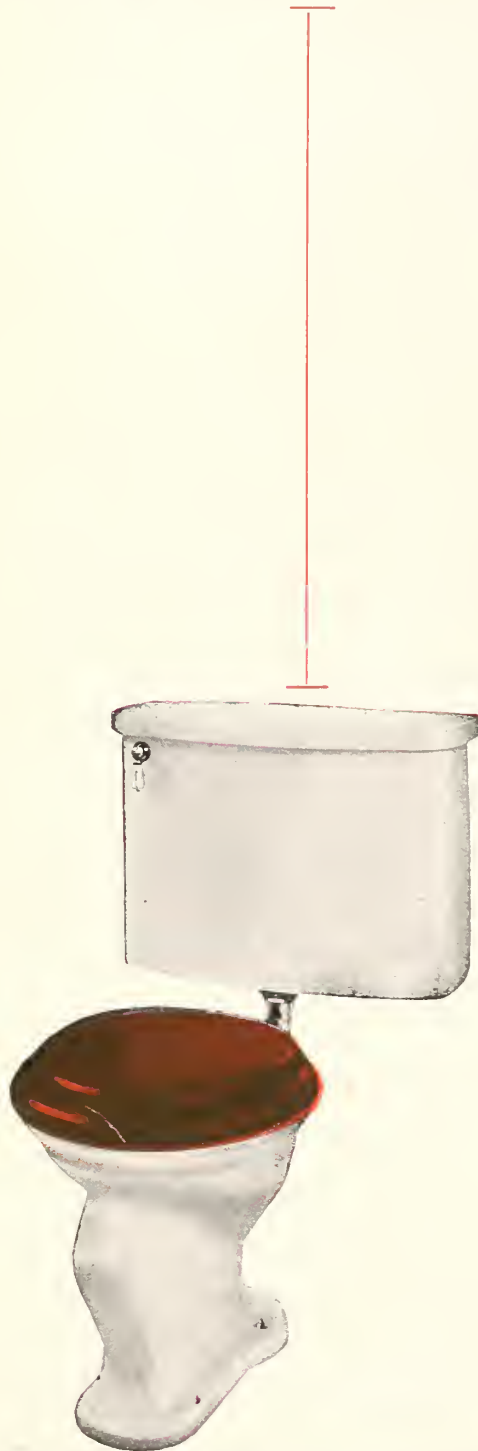
are quiet, efficient and thoroughly guaranteed. Write for our attractive Exclusive Agency offer and learn how easily and profitably you can install them.

**The Canadian FAIRBANKS-MORSE
Company Limited**

St. John, Quebec, Montreal, Ottawa, Toronto, Windsor, Winnipeg, Regina,
Calgary, Vancouver, Victoria.



The Test



A higher ideal of comfort, quality and appearance is characteristic of all Vitro tanks.

In the New Design Vitro Tank these ideals are realized to a degree previously unapproached even in our own great organization.

Graceful lines, white, gleaming beauty and No Trouble parts bring this tank to a state of perfection never before reached. Each tank, fittings and all, is sternly tested for three full hours at various pressures and proven structurally and mechanically sound before leaving the factory.

But the final test was still to come.

It is the plumber and the householder who finally determine the value of any bathroom fixture. The actual purchase and repurchase of a certain fixture is the real test of its saleability and worth.

This test the New Design Vitro has also met—triumphantly. More Vitros are being sold to-day than any other tank on the market.

Your Jobber Sells Them

Galt Brass Company Limited

Galt :: Ontario

VITRO
NOTROUBLE
TANK

Sanitary Engineer

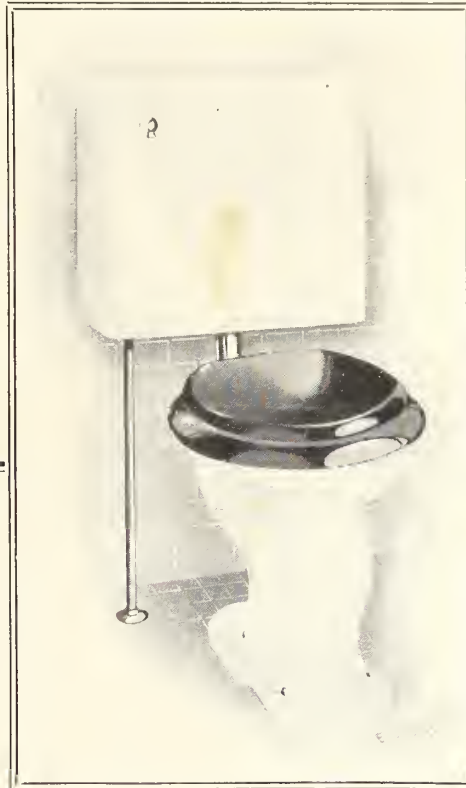
Plumber and Steamfitter of Canada

Vol. XVII.

PUBLICATION OFFICE, TORONTO, MAY 15, 1923

No. 10

**"Emco" Guaranteed
Closet Tanks.**



We are manufacturers of about 20,000 articles, including valves, pipe fittings and steam specialties.

Something More Than Utility

The life or enduring quality of sanitary fixtures plays the greatest part in the mind of the user. A year from now, to-day's installation is judged on the efficiency with which it is functioning.

The "Emco" white tank will not stain or discolor—and may be cleaned with a damp cloth as easily as a china dish.

The highest quality metals are used in the manufacture of Empire brass goods—the very latest methods and machinery are employed to assure perfection—they are submitted to severe hydraulic tests to satisfy us that they will live up to the guarantee.

See your Jobber, or write direct to us for full particulars.

Empire Brass Mfg. Co., Limited

London and Toronto :: Canada

"PUSSYFOOT" CLOSET TANKS

have taken their place as

THE LEADING TOILET TANK

Because—

The Mechanism is Efficient and Simple—
The Design is Artistic and Pleasing—
The Operation is Silent—
They are Built for Durability—

The daily increasing

NUMBER OF ORDERS RECEIVED

tells us of "Pussyfoot's" popularity with
both

THE PLUMBING TRADE *and* THE GENERAL PUBLIC

They cost no more than any other Tank

But—

YOU GET BETTER VALUE

Specify "Pussyfoot" when ordering.

Stocked by all Jobbers.



THE CANADA METAL COMPANY LIMITED

Montreal Hamilton TORONTO Winnipeg Vancouver

This 18x20 Solid Vitreous Lavatory Will Give Satisfaction and Service



No. 700—X THE "MOUNT SIMPSON."

"MOUNT SIMPSON" is the latest addition to our already comprehensive "Mount" line of Solid Vitreous Lavatories.

Made in the 18x20 size it is sufficiently small to fit into the modest toilet room and yet is not too small to find favor in the more pretentious installation. This lavatory is of particularly pleasing appearance, its graceful contour, combined with the lustrous sheen of its white impervious surface, presenting an attractiveness which is ably matched by the time-defying strength and service assured by its hard-burned, all-clay, through-and-through vitreous body.

THIS lavatory has the popular "Tuxedo" rim, has the cock-holes placed at 8" centres, which is somewhat closer than in many other small lavatories, and the same punching as for the combination fitting illustrated will take any standard cocks with pop-up waste or cocks and chain stay.

The "Mount Simpson" lavatory installed in the same toilet-room with a "Lakeside" Syphon Jet closet and a "Bellemeade" solid vitreous low-down tank will round out a very happy installation and ensure many years of unchanging service.

CANADIAN POTTERIES LIMITED

SAINT JOHNS
QUEBEC

Sales handled exclusively through recognized jobbers in plumbing supplies

A SAD CASE

Twenty-five years ago in the City of ———— Ontario, William ———— was a hard working, capable, journeyman plumber. He had finished his trade a few years before and then decided to go in business for himself.

He started up with small capital, but with plenty of energy, mechanical knowledge and an abundance of friends who promised him their patronage.

After renting a small store and putting in what stock he could procure he found that work did not come in as fast as he expected, but that it was necessary to spend about half his time figuring on jobs. The jobbers' salesmen were anxious to co-operate with him. They helped him figure his jobs and of course in those days, as overhead expense was an unheard of thing, most of his quotations were made on a basis of from 10 to 15 per cent. on cost.

Having had no business training, he gave little thought or attention to such matters as volume, bookkeeping, cost accounting and overhead expense. To his mind these things were necessary evils which he would give as little attention to as possible. But he would argue by the hour of the relative advantages of lead and iron, and was proud of his ability to wipe a good joint.

For twenty-five years this man has worked steadily from nine to eleven hours a day, has had no holidays outside of an odd day or two of fishing. Yet today he is in the same city, on the same street, in the same store, and holds the same views, in fact he is in the same position as he was twenty-five years ago, because Dun's and Bradstreet's give him a rating of under a thousand dollars.

Think of the tragedy of the thing—a life time wasted—hopes shattered—family uneducated and not enough laid aside to be able to spend the remaining years of his life in leisure and happiness—all because he did **not know**. He was not taught to realize that underlying all businesses there were fundamentals which, if ignored, would bring disaster. These common everyday rules of business are as clearly defined as the law of gravitation, whether it be a grocery business, a shoe business, an electrical business or a plumbing business. You cannot buy an article at a dollar, have an overhead expense of 20 per cent. and sell it at a dollar and twenty cents and succeed. Mechanical knowledge and hard work are of course necessary, but they are secondary.

The **Sanitary Engineer** referred to above told our Mr. Henderson that if our service had been available twenty-five years ago his life duties would not have been so arduous—his family would have been able to enjoy the finer things of life and today he would be able to take things easy instead of having to work with the tools up to the last.

Unfortunately there are many more like him in this industry and if we could have a quiet talk with those **Sanitary Engineers** who know deep down in their hearts that their business has been a failure, we would convince them that the **Henderson Pricing System** would at least place them on a sound basis from now on. However, our small fees of 10c. per day will not permit us calling on each member of the trade individually, so we urge them earnestly to do this—**TRY THE HENDERSON PRICING SYSTEM FOR ONE YEAR**. Even if it is only 10 per cent. as good as is claimed for it, it will more than pay for itself.

For six years this service has saved other **Sanitary Engineers** time, worry and money. The cost is ridiculously low, the terms are spread out over a year, in fact everything possible is being done by us to induce every **Sanitary Engineer** in the Dominion of Canada to adopt this service.

Don't let another day go by without writing for our booklet **Profit Insurance** and an order form.

HENDERSON BUSINESS SERVICE LIMITED

Farmers Bldg.

P. O. Box 123

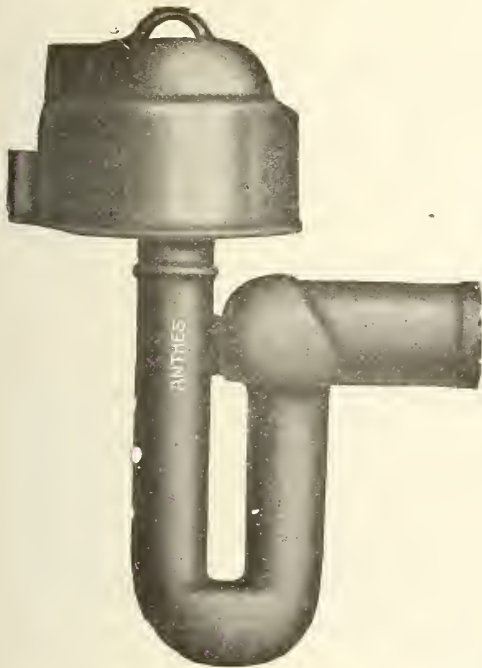
Brantford, Ont.



Anthes Soil Pipe

The Cheapest—by far—in the end

The Anthes Syphon
is the Heart of
the Disposal System
*Rugged — Simple
—Unfailing—*



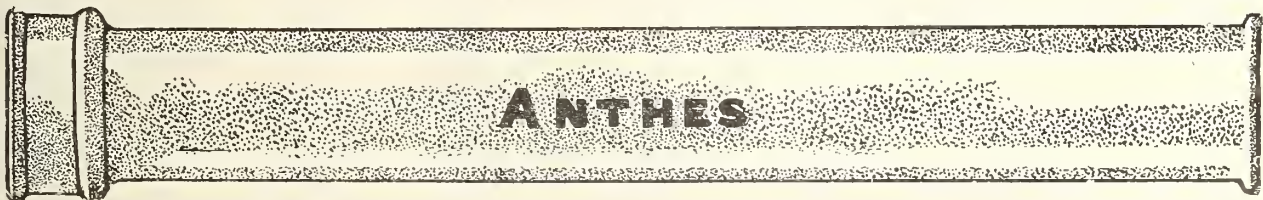
Specify Anthes Soil Pipe for your next disposal job. It has a permanency that tile pipe or unknown brands of soil pipe can never hope to equal; it lasts for generations without repairs; it is the cheapest—by far—in the end.

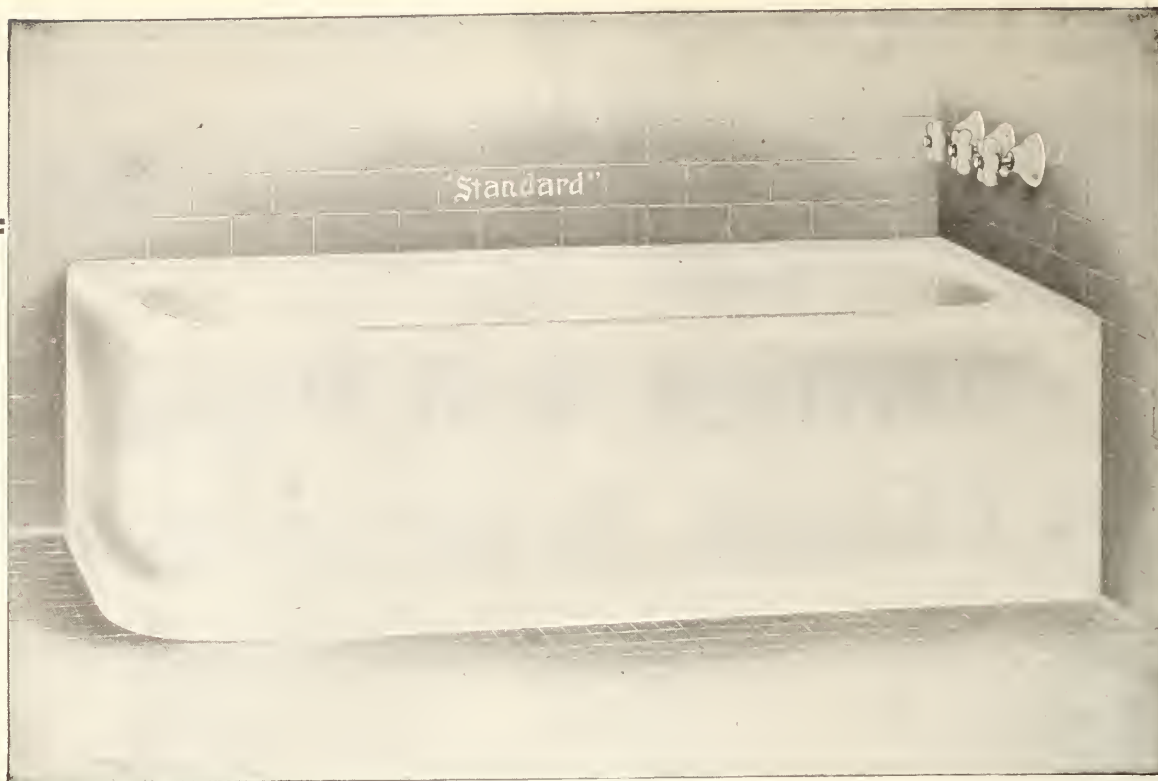
Anthes Foundry

Limited

Toronto and Winnipeg

Manufacturers of Cast Iron Soil Pipe and Fittings





The Joys of a Built-in Bath-tub

HAVE you exploited fully the joys of a built-in bath-tub? Do you tell customers of its beauty of appearance? That it occupies less space? That it is more sanitary? That dirt cannot collect below or behind it?

The "Standard" built-in bath-tub is as big an advance in comfort over the four legged bath-tub, as the comfortable chesterfield is over the old horse-hair sofa.

Built in bath-tubs, pedestal lavatories, and other up-to-date plumbing fixtures are being exploited in a powerful and effective manner by the "Standard" advertising campaign now appearing in a select list of Canada's Magazines and newspapers.

Standard Sanitary Mfg. Co.
Limited

General Office and Factory: Royce and Lansdowne Aves., Toronto

Toronto Store:
55-59 Richmond Street East

Calgary:
325 Eighth Avenue West.

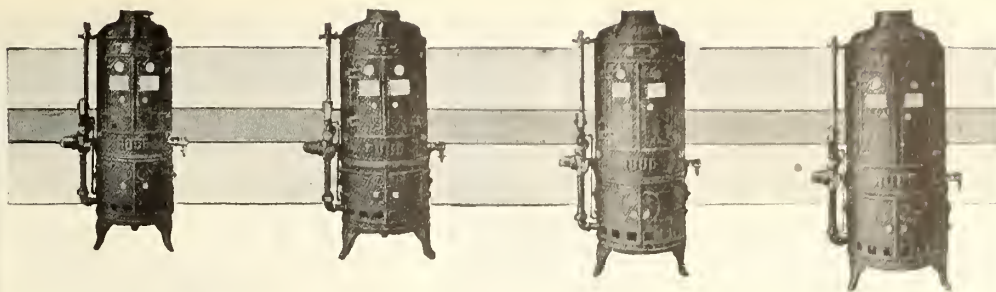
Winnipeg Showrooms:
76 Lombard Street

Hamilton Store:
20-28 Jackson Street West

Montreal:
New Birks Bldg.

Vancouver:
860 Cambie Street.

"Made in Canada"



The All-Quality Line

RUUD has never cheapened design or sacrificed quality. RUUD to-day builds the only Complete All-Quality Line of Gas Water Heaters.

Every RUUD Instantaneous Automatic Water Heater is equipped with both water flow and water temperature controls, and with two separate independent gas valves.

Every RUUD Automatic Storage System is equipped with a super-weight copper-brazed tank and a perfected fuel control—the RUUD All-Metal Thermostatic Moment Valve.

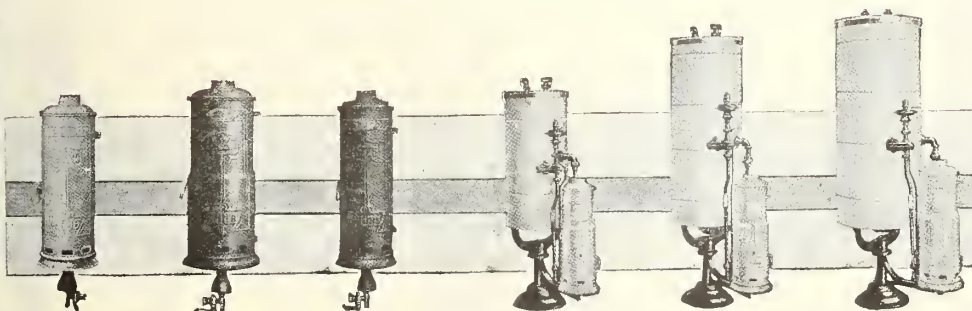
Every RUUD Tank Heater is equipped with exterior reversible union manifolds—all parts are accessible and removable. Installation and maintenance costs are reduced by the quality of design and construction.

Every type and size RUUD has that in-built quality which results from over thirty-four years' practical experience in the gas water heater field.

RUUD design, RUUD quality, RUUD prestige—these are forces that will help you build a successful water heater business.

Since 1889, RUUD has been the world's water heater standard.

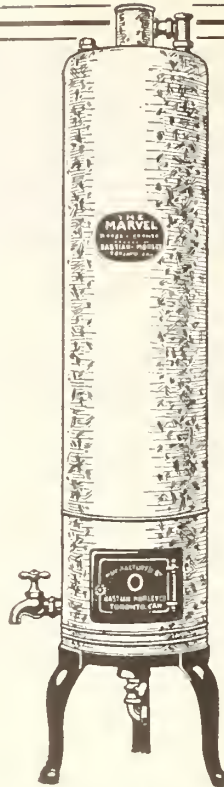
Ruud Manufacturing Company
Toronto - Ontario



Our Guarantee

Below is reprinted the guarantee which appears on our Plumbers' Price Schedule No. 60—

"Both workmanship and material used in the construction of our heaters are guaranteed for a period of one year from date of installation and we warrant it unequalled in gas efficiency, economy and durability by any other type of water heater.



To You

"We give free service and advice in connection with the installation and inspection of all heaters manufactured by us."

Write for full particulars of this wonderful heater.

Sold only by or through plumbers

BASTIAN-MORLEY, LIMITED
125 Hanson St.
TORONTO, CANADA

KERR VALVES

Meet
Every
Fire
Insurance
Requirement



No. 62
2½ to 4 in.

These gate valves are specially designed to comply with the requirements of the Factory Mutual Fire Insurance Companies' specifications for Sprinkler Equipment.

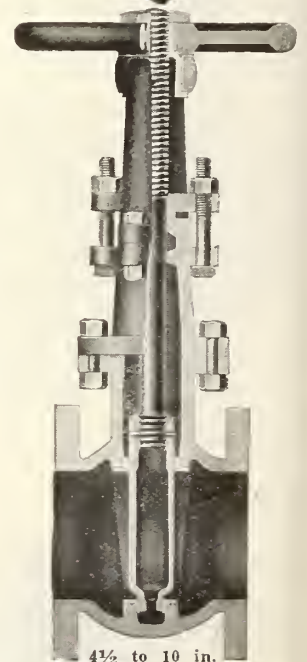
Bronze bushed Stuffing Boxes, and Malleable Iron Glands are employed, and stems are of the dimensions and strength required on this exacting work.

Commercial valves of our manufacture are supplied in this pattern and with this equipment, thus insuring a remarkably high-class valve.

The valves are compact in design, sturdy construction, and modern throughout. Iron Body, Bronze Mounted, with outside Screw and Yoke.

Specify Kerr KEYSTONE Gate Valves.

Every valve tested.



4½ to 10 in.

The **KERR ENGINE COMPANY**
LIMITED

WALKERVILLE

Valve Manufacturers

ONTARIO

Plumbers! Pump Dealers! *You've Waited for This!*

HERE'S a line of electric pumps for both deep and shallow wells that will now let you go out and meet the requirements of every prospect. You don't need to miss a single sale. There are 26 different styles and sizes.

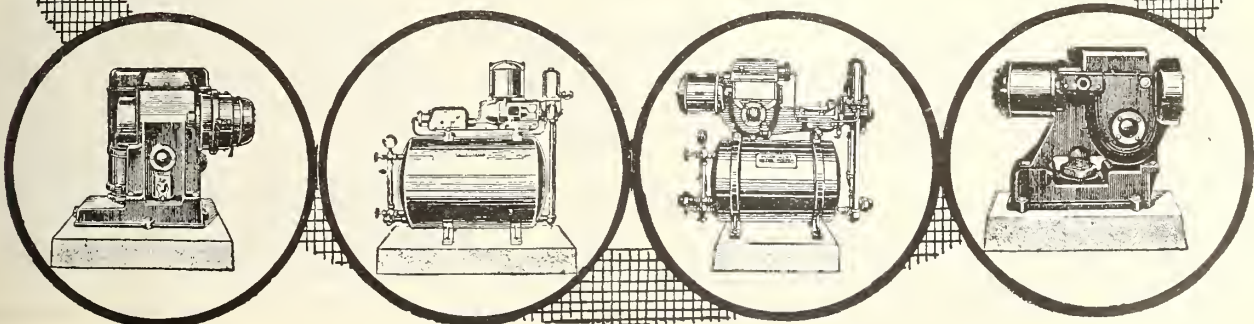
These pumps are made by Delco-Light—they are made to Delco-Light standards of quality. They are sturdy and dependable. For 32 or 110-volt D.C. or 110 and 220-volt A.C. service. Large or small capacity. Automatic. Simple in design. Easily installed. Low priced. You've been waiting for a complete line of electric pumps like this!

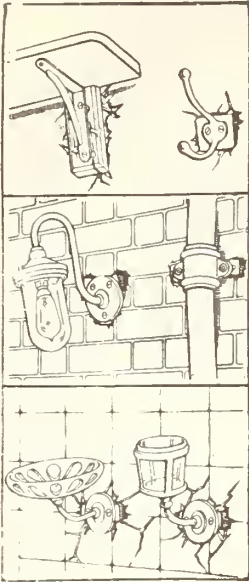
If you want to get the whole Delco-Light proposition on handling this profitable line, write immediately to your nearest Delco-Light distributor. He has a stock that will assuredly interest you—from a point of dollars in your pocket. Write today—while you have it in mind.

Delco-Light Co. of Canada, Limited
Toronto, Ontario

Distributors:
ELECTRICAL SYSTEMS LIMITED
173 King Street East
TORONTO, ONT.

DELCO-LIGHT **Water Systems** *For Country and City Homes*





Will your Fixtures loosen with Time?

If the bathroom and sanitary fixtures you put up loosen and fall apart it is detrimental to your future business.

Why not always ensure permanent attachments to Brick, Concrete, Marble, Tile, Cement and any other material **by using Rawlplugs?** This Fibre Plug, used with a Screw, ensures a solid and permanent attachment **that will never loosen.** Rawlplugs resist vibration; hold heavy weights and are more economical than any other type of screw anchor.

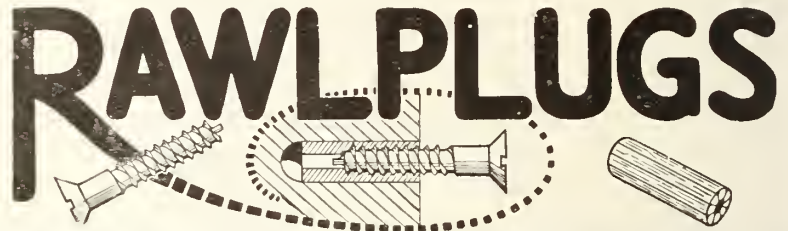
For permanent attachments you must use Rawlplugs on your next job. Write us to-day for price list and samples.

INVENTIONS LIMITED

THE RAWLPLUG CO. OF CANADA

Southam Building, Bleury St., Montreal

FIX IT WITH



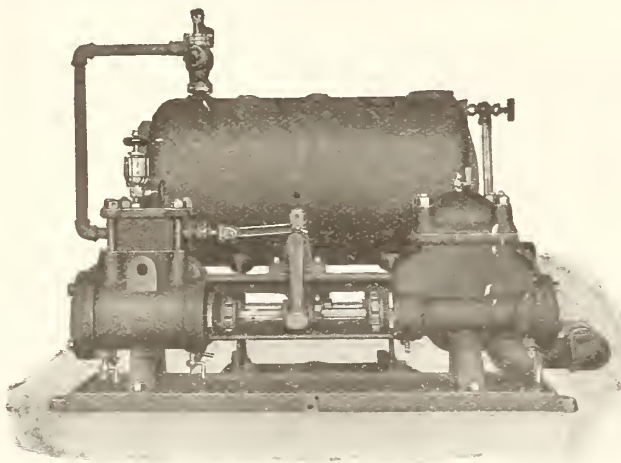
SALES AGENTS:

Dominion Engineering Agency, Ltd., 24
Adelaide St., East, Toronto, Ont.

Sterling Specialties, 213 Somerset Building,
Winnipeg, Man.

H. G. Evans, 58 Water St., St. John, N.B.
Blackadar & Stevens, 139 Roy Building,
Halifax, N.S.

Agents wanted in Ottawa.



Automatic Feed Pumps and Receivers

This equipment is made with motor driven pumps; with outside packed pot valve pumps; with two pumps; with low pressure steam pumps, or with Simplex pumps—to meet your requirements.

Distributors for Otis Heating Devices and Fisher's Steam Specialties. Write us for further information.

A Good Heating Equipment—

No heating equipment will give good service with a pump that does not stand up under the daily grind.

If your heating plant needs overhauling, get a Smart-Turner dependable pump and do away with future troubles.

Smart-Turner pumps installed in heating equipments are giving steady service and we are confident that we can help you too.

The
SMART-TURNER MACHINE CO. LTD.

Hamilton, Canada

Representatives in Toronto, Montreal, Winnipeg and St. John

The New *Little Giant* Pipe Wrench

*I Handed It To The
First Engineer
I Met—*

AND HE SAID:

"Why, there are just three parts!
You think of a pipe wrench with
springs and rivets and things, but
this is the simplest I have ever seen
—nothing that could break on it.
Where can I get one?"

It takes only a glance for any man
familiar with tools to recognize the
great advantage in "Little Giant"
Simplicity.

The two powerful jaws are drop-
forged, heat-treated and practically
indestructible. Two sets of teeth on
the smaller "Little Giant" and four
sets on the larger ones, double or
quadruple its useful life.

Mechanically correct proportioning
of metal gives the strength which
enables it to stand up under the
added leverage given by the extra
length handle and to easily turn
pipes, rods, nuts, etc., which others
fail to budge.

Every "Little Giant" Pipe Wrench is
sold with our positive guarantee.
Send for our interesting circular No.
300E, fully explaining its advan-
tages, and ask your supply house to
send you a "Little Giant" wrench at
once.

Enter This Contest

Show other engineers
how the "Little Giant"
helps most of your work.
Send in photographs of
the "Little Giant"
Wrench in action and
win one of the following
generous offers:

\$15.00 for the most in-
structive photo.

\$10.00 for the second
best.

\$5.00 for the third best.

\$1.00 for each other ac-
cepted.

Yours may be a winner.
Send photo or photos
early. Contest closes
June 1st.

Photographs not accept-
ed will be returned, if
requested when accom-
panied by return postage.



London Office: Greenfield Tap & Die Corp., 139 Queen Victoria St., London, E.C.4.

GTD

Screw Plates, Taps, Dies, Reamers, Gauges,
Pipe Tools, Twist Drills, Milling Cutters.

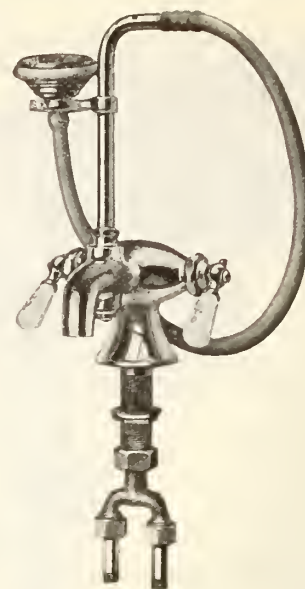
A-2500 DESCRIPTION

QUATURN* Combination Double Shampoo and Basin Cock, nickel-plated, with ball-check tail pieces, china index handles, rubber tube, and N.-P. spray.

MEASUREMENTS

Center of cock to center of spout outlet.....	3 5/8"
Bottom of flange to center of shampoo tube outlet.....	10 3/8"
Diameter of flange	2 1/2"
Bottom of flange to end of tail pieces.....	7 3/4"
Center to center of tail pieces.....	2 1/2"
Diameter of shank (3/4" I.P.S.).....	1.05"
Width of faucet over all.....	6 1/2"
Length of rubber tube	24"
Diameter of spray	2 1/2"

This Quaturn Shampoo Faucet has Quaturn standardized **working unit**—the only part that wears—renewable at moderate expense—the **bodies stay installed permanently.**



A-2500

THE

WALLACEBURG BRASS & IRON MFG. CO.

WALLACEBURG, ONTARIO

LIMITED

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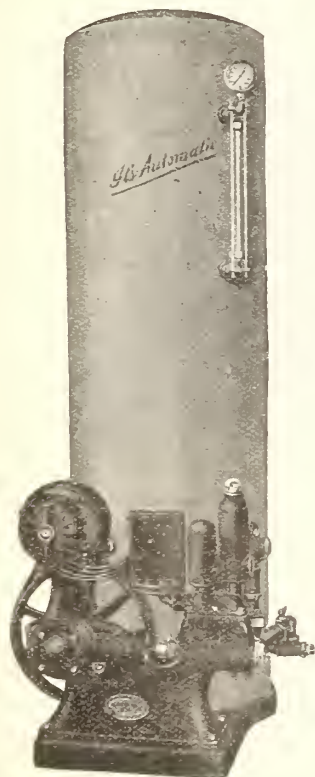
10 Wellington St. E., Phone Main 2355.
Mr. L. N. Vanstone.

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10 Victoria St., Phone Uptown 945.
Mr. G. M. Price.

WINNIPEG:

80 Lombard St., Phone A. 9135.
Moncreff & Endress, Ltd.



"600,000 Canadian Homes without a Bath tub!"

YOUR OPPORTUNITY---

Sell City Conveniences and Comfort

Federal and Provincial Governments, National Advertising, Farm and Trade Journals are uniting in a campaign to bring city conveniences to the country by means of water supply systems.

Here is a splendid opportunity for you to develop a practically untouched and profitable line of business.

You will be surprised to learn how easily you can install the famous Fairbanks-Morse Water System—and you will make lasting friends each time you sell one.

There's a Fairbanks-Morse Water Supply System to meet every requirement, and our engineers will gladly co-operate with you in specifying the correct one.

Write now for our attractive exclusive agency offer and get into this new field.

The Canadian FAIRBANKS-MORSE Co. Limited

St. John Quebec Montreal Ottawa Toronto Windsor
Winnipeg Regina Calgary Vancouver Victoria

SANITARY ENGINEER

PLUMBER AND STEAMFITTER OF CANADA

ESTABLISHED 1907

PUBLISHED TWICE MONTHLY

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No. 9

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JOHN BAYNE MACLEAN, *President.*H. T. HUNTER, *Vice-President.*H. V. TYRRELL, *General Manager.*

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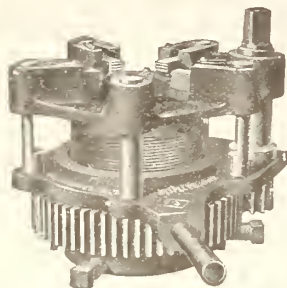
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No. 2 Toledo Geared Threading Tool. Capacity $2\frac{1}{2}$ in. to 4 in.

**One Man Does The
Work of Two**

More Work and Better Work with Toledo and Jardine Pipe Threading Tools

This tool threads pipe with less labor than others. It is so simple in construction that it is easier to do work right than to do it wrong. It is compact, light in weight, strong and durable, accurate and speedy. It costs no more than imitations and in one month's production it will more than pay for itself.

Ask the man that uses them.

Made in Canada—Leading Supply Houses will quote you

A. B. Jardine & Co., Limited, Hespeler, Ontario

Ontario, West of Brockville:
W. H. Cunningham & Hill,
269 Richmond St. W., Toronto, Ont.

Brockville and East:
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New Birks Bldg., Montreal, Que.

Winnipeg and West:
Stanley Brock, Ltd., Winnipeg, Man.,
Calgary, Alta., Vancouver, B. C.

SIGN AND MAIL THIS COUPON AND GET A CATALOGUE

Name
Address

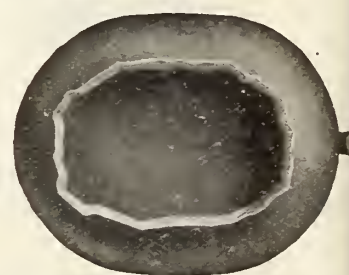
Sanitary Engineer

Something New

C. & H. Solid Shell Float Guaranteed for Five Years



Positively seamless; No joints; made from purest, close-grain electrolytic copper guaranteed for five years.



Costs more than the others but is more than worth the money. An absolutely new departure. Nothing like it on the market. Fill in the coupon below, tear out the page and mail to us now for rush delivery.

FILL IN THIS COUPON NOW

Ship the following C. & H. Solid Shell Floats, Express Prepaid:

.....Size 4x5" at \$7.80 doz. or \$7.40 doz. in lots of 3 doz.

.....Size 5" at \$8.50 doz. or \$8.10 doz. in lots of 3 doz.

Name..... Address.....

W. H. CUNNINGHAM AND HILL LIMITED

Canada's Leading Plumbing Specialty House

269 West Richmond St.

TORONTO

Many Interesting Issues Discussed at 12th Annual Convention Ontario Society

Inspection of Plumbing and Heating Equipment of Union Station—Luncheon at Prince George Hotel—Ontario Boiler Inspector Tells of Offenses of Steamfitters

FROM the social and educational standpoints, the twelfth annual meeting of the Ontario Society of Domestic Sanitary and Heating Engineers, held in Toronto on Thursday and Friday, May 10 and 11, was very successful.

Following the sessions of the Executive Committee, the delegates gathered on Front Street at 11 a.m. for an inspection of the new Union Station. While waiting the members had their pictures taken a number of times by *Sanitary Engineer*, the results being shown in illustrations in this issue. After the healthy contingent from Hamilton drew up in motor cars the inspection began.

Great interest was taken by the delegates in the plumbing and heating equipment of the building. The various public washrooms and toilets and the more private divisions where travellers for a small fee may have the use of a room containing bath, shower, toilet and wash basin, were the centre of much attention, particularly the details of the piping and general layout of the spotless enamelware. The huge kitchen with its up-to-

date equipment and special water supply facilities was much admired and great surprise was evinced when the delegates were taken into the lower portions of the building to see the miles of pipe used to carry the summer and winter supply of steam. Steam is not generated in the building, being brought from a plant on Scott St., nearly half a mile distant. The sump pits and pumps are used to raise the effluent from the lower floor to the level of the street sewer. All were agreed that the station is up-to-date in every respect and the only regret was that it was not yet open to public use.

Boiler Inspections

From here the delegates proceeded to the Prince George Hotel where a very tasty luncheon was enjoyed. A number of prominent supply house and manufacturing representatives were intermingled with the association officers at the head table, in addition to Mr. Medcalfe, of the Ontario Government Boiler Inspection Department, who spoke briefly after lunch. Mr. Medcalfe pointed out

that some steamfitters had offended against the Steam Boiler Act on a number of occasions by putting in high-pressure lines without notifying the department. There had also been trouble with steamfitters installing low-pressure boilers and not seeing that owners had certificates from the department. There had been cases where boilers had been brought in from the U. S. and, where certificates had not been obtained, the owner was frequently put to great expense when trouble arose. It had cost one man \$86 to have his boiler changed to comply with the requirements. It was emphasized that it was unlawful to instal any pressure boiler without a certificate from the department.

Harry Flett, Taylor-Forbes Co., pointed out that the manufacturers were behind the legitimate plumbers and would lend assistance in helping put their business on better foundation. He stated that it was deplorable that some plumbers could not pay their supply houses because they could not collect their outstanding accounts. The supply houses were said to be in position to supply in-



Delegates to the Ontario Society convention photographed just before the start of the inspection of the new Union Station.

formation on the credit standing of consumers and plumbers were urged to take advantage of it.

Major L. L. Anthes, managing director, Anthes Foundry Co., pointed out that the manufacturers have the interests of the industry at heart and are trying to raise it to a dignified plane. He urged plumbers to realize their responsibility in connection with the health of the community. "The federal and provincial governments have not realized the full importance of sanitation," he said in conclusion.

Close Together in Hamilton

C. F. Rogers, Hamilton manager, Standard Sanitary Mfg. Co., stated: "In our city the various plumbing and heating interests are pretty close together. In the past we have considered ourselves too much as separate businesses. Whether consumer, journeyman, master



NORMAN SWANSTON

Toronto, retiring President of the Ontario Society D., S. & H. E.

plumber, wholesaler or manufacturer, we all bear a relative responsibility and good will be done only as we work together. The plumber who puts a 150-lb. pressure valve on a 250-lb. pressure job not only puts his own work into disrepute eventually but the manufacturers' goods are also condemned and everyone is harmed."

Hugh Wallace, hailed as the Dean of the plumbing trade among those present, spoke briefly, expressing his delight at renewing old acquaintances. Having secured an answer in the affirmative when questioning Mr. Medcalfe as to whether air tanks in tire repair shops came under the Boiler Inspection Act, Mr. Wallace pointed out that air tanks were different in regard to pressure than were water tanks.

Some brief remarks from President Norman Swanston concluded the luncheon and the delegates left for the convention hall for the afternoon session.

May Appoint Organizing Secretary to Stimulate Membership

Division of Province Into District Councils Also Suggested—
Members Two Years in Arrears on Dues Will be Struck From
List—Importance of Good Credit Conditions—Association Requested to Help British Plumbers Settle Here

PRESIDENT Norman Swanston opened the first business session of the convention on Friday afternoon, expressing gratification at the representation present. In his annual report, as outlined elsewhere Mr. Swanston emphasized the value of organization work and enthused over the future prospects of the organization.

The Treasurer's Report showed total assets of \$715 though considerable moneys in outstanding dues are still to be collected. Cash in bank amounted to \$272.75.

Coming to the question of committee reports Mr. Swanston stated that no report on Sanitation was available this year, Mr. John Wright being excused in view of the recent sad bereavement of his wife.

E. Cardwell reported that there was no report on the subject of arbitration because of the fact that there had been no developments during the year. P. C. Mansell read his report on legislation as outlined elsewhere in this issue.

Following this G. R. Baker, chairman of the apprenticeship committee, gave a very interesting verbal report on the work of his committee, as outlined elsewhere. Ross Belyea also reported on behalf of the educational committee.

Provincial By-law

In connection with the report of Secretary Frankland it was mentioned that the provincial by-law was all ready

awaiting the signature of the lieutenant-governor. Wm. Newell, Hamilton, took exception to this stating that no schedule was available to be worked on because the proposed bill brought up by the former Conservative government had failed to pass and it was now dead, un-

less brought through committee of the present government.

President Swanston stated in reply: "What we have is a proposed provincial regulation. Unfortunately that regulation has not become law. That is due to the fact that it has not been endorsed by the lieutenant-governor or provincial secretary. While it is not a legal measure the man who rendered assistance has expressed the opinion that if each of the various municipalities throughout the province saw the necessity of adopting any part of the proposed measures, that ultimately the provincial legislature would have no other course but adopt it as a whole."

Mr. Baker suggested that the association work with the Plumbing Inspectors' Association to help get the by-law through. Mr. Swanston replied that the attitude of the plumbers had always been somewhat antagonistic toward the inspectors but that the inspectors had not held such an attitude toward the plumbers who carry on their business right. He was of the opinion that such co-operation might work to good advantage, and announced that he expected it would be but a very short time till the proposed Ontario by-law is in effect.

More Aggressive Campaign

E. Cardwell suggested a more aggressive membership campaign, stating that little progress was evident from year to year. Mr.



C. GORDON STEWART

Hamilton, newly elected President of the Ontario Society D., S. & H. E.



G. R. BAKER

Toronto, elected Vice-President of the Ontario Society D., S. & H. E.

Swanston stated that the question of having an organizing secretary had been in his mind for some time and thought it should be discussed. Thos. E. Arthurs revived the suggestion made by him at the last annual convention to the effect that the province be organized into districts having councils which would meet once every two months, members to pay their own expenses. These councils would refer matters to the executive of the Ontario association. Nothing had been done on the matter as yet.

Harry Mahoney thought that the membership fees of the 150 to 200 members in the association would not enable the carrying on of an organizer's effort, and stated that the matter must be discussed from a financial standpoint. He doubted

OFFICERS, ONTARIO SOCIETY D., S. & H. E. FOR 1923-24

President, C. Gordon Stewart,
Hamilton.

Vice-president, G. R. Baker,
Toronto.

Treasurer, C. M. Sparling,
Toronto.

Secretary, G. F. Frankland,
Toronto.

Chairmen of Committees
Sanitary, Norman Swanston,
Toronto.

Heating, E. Cardwell, Welland.
Arbitration, E. Fletcher, Hamilton.

Legislation, P. C. Mansell,
Toronto.

Apprenticeship, Wm. Newell,
Hamilton.

Educational, H. W. Rushby,
Toronto.

if the present Ontario government would pass by proposed by-law because the former government has shown favor for the interests of the rural districts alone.

W. Newell, Hamilton, stated that in his opinion the association did not give enough to its members. Outsiders can get just as much service as an association member. "The manufacturer infringes on our rights when he estimates on our jobs, and if we had a committee to do that work members would lean on us more. Plumbers are only doing about 75 per cent. of their work and the manufacturer is doing the other 25 per cent.

C. G. Stewart, discussing the subject of district councils, pointed out that such a plan would lay the association open as a board of appeal. He thought that if



JOHN WRIGHT

Toronto, former Chairman Sanitary Committee, who was unable to be present at this year's convention due to the death of his wife.

some arrangement could be made so the present secretary would be at the beck and call of outside towns and have time to stir up new members, collect dues, etc., the situation would be met.

P. Cockfield believed it would be possible to have an organizer work on the basis of keeping a certain percentage of the new fees and renewals.

G. R. Baker thought district councils would do much good, but Mr. Stewart maintained that a ruling should be given on controversial points which would be bound to arise. Mr. Arthurs thought the association would be better off for some



The Hamilton delegates to the Ontario Society convention whose arrival injected life into the fellow craftsmen waiting to inspect the Union Station.



A mixed delegation to the Ontario Society convention, including Secretary Frankland, C. G. Stewart, Ross Belyea, Ed. Needham, Wolverine, Ltd.; T. F. Holliday and H. L. Southall of "Sanitary Engineer."

differences of opinion and as a means of getting more life into the proceedings. He believed district councils would function. H. Mahoney's motion that the matter of an organizing secretary be left to the incoming directors and if this plan was not found feasible to have authority to seek other means, was carried. Mr. Arthur's motion that the matter of district councils be taken up was also carried.

The auditors' report recommended that all members two years in arrears be struck from the list. A nominating committee, consisting of Messrs. Mansell,

Mahoney and Arthurs, then retired to consider nominations.

Credits

Mr. Conroy of the United Creditors' Association spoke on the subject of credits and collections, pointing out that good credit is just as vital as new business. He gave some statistics showing the alarming death rate among various businesses due to failure to properly collect book debts, and continued:

"When you go into a man's house to install plumbing you are acting as his banker because you have installed goods which you have to pay for. The supply houses have an association so that when you fall down in payments your source of supply is cut off and you are out of business. The man who has the plumbing installed has the advantage of the use of your money on loan. Many debtors fail to realize that they are under obligation to the man who has done the work." There were two classes of debtors, the dead beat and the one who cannot pay. Mr. Conroy proceeded to outline the plan adopted by his firm for the collection of bad debts.

In reading communications Secretary Frankland told of having received requests from England for help from the association in placing plumbers in business in this country. This was the result of the spread of information abroad that high wages and scarcity of help was being felt here. Messrs. Harrison and Phelps, Welland, were two new members to join the association.

The election of officers was the concluding business of the session, the place of next meeting being left to the executive committee.

Those Present

Among the members noted at the Ontario Convention this week were the following:—Thos. Maxwell, Toronto; H. Mahoney, Guelph; F. Gentle, Toronto; F.

Smith, Guelph; G. R. Baker, H. W. Rushby, P. C. Mansell, N. Swanston, all of Toronto; E. T. Needham, Wolverine Ltd.; A. E. Fletcher, Hamilton; E. Cardwell, Welland; A. Crompton, T. E. Arthur, W. A. Cannon, W. Newell, Mr. Backalake, all of Hamilton; P. Russell,



J. W. BRUCE

International organizer of journeymen, who addressed the delegates at the annual banquet.

T. Shearer, T. A. Williams, Ross Belyea, P. Cockfield, Gordon Belyea, P. A. Cain, Wm. Boxall, all of Toronto; Thos. McKeown, Mt. Dennis; F. H. Shorney, Weston; F. Hogarth, Toronto; T. W. Mason, Wolverine Ltd.; B. G. Goldman, Toronto; T. J. Harrison and Mr. Phelps, Welland; C. G. Stewart, Hamilton; Harry Weinraub, Toronto; W. F. Clifton, Toronto.

At the afternoon session President Norman Swanston delivered his annual (Continued on page 27)



H. MAHONEY

Guelph, Ont., one of the veterans of the Ontario Society D., S. & H. E., whose experience was helpful at the convention just concluded in framing plans for the future.

All Branches of Trade Renew Acquaintances at the Annual Banquet

Manufacturers and Supply House Representatives Make Big Appeal for Closer Co-operation—Local and Outside Talent Help Make Enjoyable Affair of the Banquet—Plumbing Should Not be Sold on Basis of Lasting a Lifetime

THE annual banquet held on Friday evening at Bingham's was the occasion of much hilarity and right good fun as manufacturers, wholesalers, masters and representatives of journeymen intermingled. A number of the veterans of the industry forgot their years and joined with the rest in a grand round of merriment, taking much enjoyment out of recounting some experiences of former days. There was a goodly representation of all branches of the craft and all enjoyed the splendid banquet.

When the last item on the long menu card had been disposed of there was some entertainment in the form of saxophone solo, etc., but perhaps the most outstanding part of the entertainment was the series of "Gallagher and Shean" verses sung in duet by P. C. Mansell, president, Toronto society, and Garret F. Frankland, the genial secretary. The author of these verses showed great insight into the shortcomings of the various members and the musical rendition left nothing to be desired.

Among those whose presence helped to brighten the proceedings and who are only periodically seen at the association functions were the following: Past-president F. R. Maxwell, W. G. H. Hris, Canada Metal Co.; H. Locke Page Hersey, Ltd.; Hugh Wallace, Toronto Hard-



THOS. E. ARTHURS

Hamilton, Ont., whose suggestion for organization of district councils throughout the province is to be acted upon.

ware Mfg. Co.; Major. L. L. Anthes; F. Armstrong, Port Hope Sanitary Mfg. Co.; Peter McMichael, Dominion Radiator Co.

First President

F. R. Maxwell was the first speaker, being introduced as the first president of the Ontario Society D. S. & H. E. He stated that the association had been formed twelve years ago, and that a few who were at that inaugural meeting were present at this banquet. In most cases the sons of those who founded the organization were now active in it. He was satisfied that the Ontario Association would prosper and that there was no more important branch of business. "We are the health and sinew of the citizens," he said, "but unfortunately we don't take our right place because we don't appreciate our own worth. We are judged as we judge ourselves. The young men coming up in the business are looking further ahead and applying business principles."

The newly-elected president, C. G. Stewart, Hamilton, was introduced to the banquet and pledged his best efforts provided he secured the support of the other new officers.

G. R. Baker, newly-elected vice-president, was introduced and gave one or two recitations in his own inimitable way.

Peter McMichael, Dominion Radiator Co., spoke of his fond recollections of many years spent in close association with the interests represented. The manufacturers of Canada, it was said,



A few of the more select delegates to the Ontario Society convention. Some of the early arrivals.



H. WEINRAUB

Toronto, who has been succeeded in the office of Treasurer of the Ontario Society by C. M. Sparling, Toronto.

held the trade in the very highest esteem and would do all possible to eliminate ground for grievance. He urged more co-operation and more of a spirit of boosting for the industry.

F. Armstrong Speaks

Fred Armstrong, Port Hope Sanitary Mfg. Co., stated that he felt quite at home among the plumbers in view of his early association with the industry. "Once a plumber always a plumber," he said. "I never regret the time I learned this trade. I got information then which helps me to judge the requirements of the trade. I am interested in plumbers and plumbing associations because I feel there is no business that can get along without a properly-formed association. I mean an association such as yours, formed for the benefit of the trade."

He spoke of the items appearing in the press which made the plumber the butt of many unjustified remarks. These and reports of other matters such as the indictment of a number of manufacturers in the U. S. a few days ago, had given the opinion that the plumbing industry was avaricious and that they get too much for their efforts. "On the other hand," continued Mr. Armstrong, "this is not a paying business. I fail to see where you men get enough for your work. I doubt if any business in Canada is more poorly paid than the plumbing trade for the work done. There is only one way to change it and that is to settle a fair price and get it without conveying the impression that you are getting too much for your work."

Shouldn't Last Lifetime

"Some of your efforts convey the impression that plumbing should not only last a lifetime but should be handed down to your successors. When you acquaint people with the fact that plumbing work should be renewed frequently you will make more business for yourself and do them a service. I feel that much of the work you do in installing enamelware is

done at less cost than should be. Our material requires careful handling, and I have come to the conclusion that it is not any wonder we have a quantity of defective ware when I see how some of it is handled. Much of this expense could be avoided. When you find something that is not exactly right don't wait for the traveler to come and tell you good naturedly that 'it's all right, the manufacturer will give you a new piece.' It costs you money for this to be done. Sometimes a piece of ware will be in the warehouse as long as three years before being brought to your attention as defective. You should see that the man who has the work done accepts some responsibility and doesn't get it for nothing. It should be replaced on the same basis as tires. There is no other business in which you can go back and say, 'I want a new piece for a defective article' after a year has elapsed.

"It is the policy of our company to do business through the jobbers. Every one has his sphere of action and we consider this plan the most economical. You are wise to build up a good connection with your jobber." Mr. Armstrong emphasized the value of good jobber connections by a few notes from his early history when Alex. McMichael, a brother of Peter McMichael, who was then with James Robertson Co., gave him much needed assistance which put him on his feet.

Journeymen's Organizer Speaks

John W. Bruce, organizer of the United Journeymen's Association, spoke on the value of organization, pointing out that much of the chaos in the world to-day was due to misunderstanding of our respective places in society. He spoke of his recent visit to Europe while



THOS. MAXWELL

Former President of the Ontario Society D., S. & H. E., who was very much in evidence at the convention just concluded.

attending the sessions of the League of Nations, and was of the opinion that we in this country had made much greater strides in plumbing and heating equipment than had those countries visited. He spoke of the harmonious relations prevailing between employers and journeymen in Canada and stated that his association had endeavored to give the employers a square deal.

Mr. Kennedy, president, Michigan State Plumbing and Heating Dealers' Association, was the chief speaker of the evening, his address being outlined fully elsewhere in this issue.

The Muir Apartments on Algoma street, Port Arthur, is in course of construction and Mr. Muir is now calling for tenders for the full plumbing in four bath rooms.



Trying to settle a ponderous question. Secretary Frankland and Harry Mahoney from Guelph, try to decide whether or not to open the new Union Station.

Speaker Hoped Day Would Soon Come When Plumbers Would Not Do Business for Profit

Anything Charged to Customer Above Actual Cost of Material to the Plumber Should be Legitimate Charge for Service, Not Profit—In Soliciting Members for Associations Don't Tell Them Benefits They Will Receive But What They Can Do for Others

Report of address by N. J. KENNEDY, before twelfth convention Ontario Society D., S. & H. E.

IN INTRODUCING his subject, N. J. Kennedy, president, Michigan State Plumbing and Heating Dealers' Association referred to his early experience in the plumbing business in Toronto several years ago. He had learned the business in a peculiar way, having taken a "white collar" job as a bookkeeper with Mr. Allison. He stated that he had later "unlearned the business under K. B. Allison."

"We must think well of our own industry," said Mr. Kennedy, "and be prepared to defend that industry against attacks, no matter from whence they come. That is a good foundation but we must go further. We must realize the importance of our industry in the advancement of civilization. Consider what the condition of this or any country would be if it were not for sanitation. How would it be possible to have cities such as we have if it were not for sanitation? How

would it be practical to have wonderful schools, offices and other buildings were it not for the fact that the plumber is there to provide the arteries through which refuse is disposed so communities can be kept in such a state that life is safe and pleasant.

"On your efficiency, knowledge and skill depends the wonderful advancement that has been made in those directions. We as plumbers have overlooked the fact that we were called to perform for society a greater service than the medical profession ever could perform, because we do these things that prevent disease. In the face of this realization you have failed to realize the high standard of your calling and to enforce your thought on the rest of the world.

Failed to Sell Yourselves the Idea

"I will accuse you of one more thing and that is, you have failed to sell yourselves the idea of the importance of your

industry. All of us have considered this plumbing business as a simple method of making a living. It has been to us a bread ticket and we have considered it only in terms of dollars and cents. In the majority of cases we have even failed to realize in it the dollars and cents which we presumed were there.

"A man may have one particular method of earning his living, but if he must close his mind to all other things to get there then he will fail. He will fail in the development of himself, which is the bitterest failure of all. Nothing is so despairing as to arrive at the end of life and realize that you have not acquired many elements of knowledge and experience which could have been yours had you been willing to make the necessary mental effort to acquire them. A plumber who is only a plumber is a failure no matter how much money he has piled up. You must acquire ability to reason and knowledge of other things



This group could hardly be enticed away from the Queen's Hotel. Left to right, back row, P. Cockfield, Toronto; T. Sheater, P. Russell, D. Norwich, Ross Belyea, all of Toronto. Front row, C. G. Stewart, Hamilton, and Ed. Needham, Wolverine, Ltd., are shown.



GARRETT F. FRANKLAND

Secretary, Ontario Society D., S. & H. E., whose efforts were largely responsible for the success of the 12th annual convention.

and so learn to sympathize and size things up from a broad viewpoint.

"This industry needs expansion in the mental calibre of the men engaged therein and there are means for acquiring that expansion which we are neglecting or are making little of. What does this association mean to you? As a group it means a gathering that is going to cure all ills and defects and wipe away all the disadvantages of the plumbing business. You sit comfortably while this is being done. Invariably the thing that kills associations is the nonchalance or selfishness of the individuals belonging to it. Never sell an association membership to anyone by pointing out to him the individual advantages he is going to gain by joining, because if you do you start him out with the wrong thought and you will never correct it. No association will live if fundamentally its program is selfish. When you sell a man membership in your association sell to him on the basis that you want him to come into the association for the good he can do to others. He will stick with you to the end.

They Are Selfish

"Some men will say they see nothing in your association. This is because they are selfish. The thing that is the matter with the world to-day is just human selfishness.

"When things are booming, many men have not the time to join an association and when things are flat they ask what is the use? When they are flat they should be in the association devising ways to develop business. It has been pointed

Successful Apprenticeship Plan in Toronto is Outlined

Seventy-Two Boys Under Instruction in Toronto—
Both Boy and Master Plumber Are Morally Bound
—Getting Good Class of Boys

Report of G. R. Baker, Chairman Apprenticeship Committee, before Twelfth Annual Convention, Ontario Society D., S. & H. E.

"TWELVE months ago in Hamilton I presented a written report, but it got a cool reception because my idea was hard to apply in towns. That report was brought back to Toronto and applied and we are making progress. We have perfected the scheme now so that when a boy has completed this course we know what kind of a mechanic he will be.

"We have a card system which is recognized by this society whereby the boy makes application to our secretary for apprenticeship, the secretary sizes him up. We have got so far that we have now 72 boys under instruction. They have cards and they present these to their employers. It appears to be practically impossible in Canada to have the indenture system. Under this plan we expect the boy and the master to be morally bound. The master takes the boy for a probationary period of three months. Then he comes back to the secretary and says he is ready to go ahead. The employer then has to keep that boy for five years. This is quite different from the days when

the employer would take a boy in the busy season and then drop him.

"We are getting a good class of boys and they are paid \$7 per week the first year, \$9 per week the second year, and \$11 the third year. After the third year he presents himself to the secretary for examination. The examining board consists of three men from the union and three from the employers, and an examination is set for him. We pass on a boy who attains a mark of 60 points. Some get as high as 90 and 98 points. After the third year the boy receives 50 cents an hour, and the fifth year he gets 60 cents an hour. At the end of five years he makes application for a license. The final examining committee consists of a member of our organization and of the city health department. After the boy passes and gets his license we know that we have an entirely different type of mechanic than in the past.

"I hope now that we have this plan in working order that the men will make the best use of it and make even more sacrifices next year."

out that if not another building was built in America for 47 years there is enough work remodelling worn systems and renewing old work to keep every journeyman busy for that length of time.

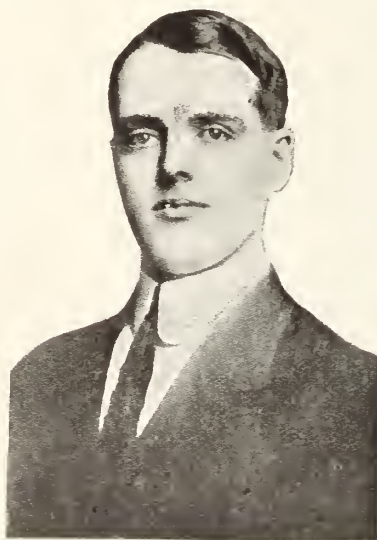
"Furthermore, you want to remember that you do not make any business by

stealing customers from someone else. If you are going to make this business grow you have to create new business instead of figuring how you are going to beat the other fellow's specifications. This is the fundamental thought which should guide you in the conduct of your business. You have a duty to perform in this direction. Do you think it is just you that is interested in the business you run? Are your pride and your conceit the only things worthy of thought in framing your business policies? When in order to gratify some imaginary wrong you go out and take jobs at even less than cost do you think you are just compromising with yourself or has it dawned on you that the wrong you are doing extends further and that you are committing a crime against your family and therefore against society which depends on the family for sustenance? Through your bad judgment you run wild and your family is being done a grave injustice for which you will have to answer.

Hopes Won't Do Business For Profit

"A man said to me the other day, 'I hope the day soon comes when we will not do business for profit.' I found this hard to appreciate at first, but there is much to be said for it. When I sell you a certain amount of goods I sell it to you for exactly what it cost me. Everything

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W. J. CLIFTON

Who has succeeded in the chairmanship of the Heating Committee by E. Cardwell, Welland.

Plans for Showing Septic Tanks at Various City Exhibitions

Alberta Association D. S. and H. E. in Convention—Recommend Closer Association With Plumbing Inspectors—Expect Broader Resumption of Business in West

THIS year's annual convention of the Alberta Association of Domestic Sanitary and Heating Engineers dealt with a large number of matters of importance to the trade and considerable progress was made by the discussions. Vice-president C. R. Frost was in the chair owing to the absence of R. J. Priestly.

The annual report of President Priestly was as follows:

Gentlemen:—I beg leave to submit my fourth annual report. It is with a feeling of deep regret that I find it impossible to be with you at this convention, but knowing that your deliberations will be beneficial to the craft at large, and such legislation will be dealt with that bring all men engaged in the plumbing and heating business together with a better understanding of one another and will, therefore, bring our membership up to the much coveted 100 per cent.

Article 1. As per your instructions, my letters were sent out to the manufacturers, jobbers and Railway Commission re the complaints made at our last convention but unfortunately they saw fit to ignore them.

Article 2. At a previous convention held in Lethbridge a motion was passed to have our financial year end on the last day of February so as to give our secretary an opportunity of closing his books and to prepare a proper balance sheet to be presented to you. With the exception of one or two cases the members have not sent in their fees or moneys for the Price Book until the first sitting of each convention. This is not fair to the secretary as the bank balance is so small from year to year that he hardly has enough money on hand to pay the necessary expenses through the year. I would suggest that the members pay for their change sheets at least once every three months.

Article 3. This association was re-organized in 1919 with a membership of forty. The number of members on the roll to-day are sixty-two. Six have withdrawn for various reasons, three of whom have left the country. Approximately nineteen have not paid their dues for two years, making about twenty-two members who are apparently dissatisfied. Just let us ask ourselves what is wrong. Is it the fault of our executive officers in not showing enough interest in our association, or is it that the district committee is not the proper scheme? Personally I think it is the latter. Therefore I would suggest that the district committees be dispensed with, and we

NEWLY - ELECTED OFFICERS OF ALBERTA ASSOCIATION D. S. & H. E.

President, C. R. Frost.
Vice-president, G. W. Henderson.
Sec.-treasurer, W. H. Kelcher.
Executive officers, H. Ferris, Edmonton; J. H. Hillier, Calgary.

Chairmen of Committees
Sanitary, D. Campbell.
Heating, R. J. Priestly.
Legislative, W. H. Kelcher.
Apprenticeship, J. Carver, J. H. Hay.
Essay, H. Ferris.

appoint an organizing secretary, whose duty it will be to keep in touch by post with every man in the province doing business in our line, at least once a month, in whatever form he thinks best, and would suggest that the question box be adopted as one of his organization schemes. I trust that you will give this



R. J. PRIESTLY

Retiring President Alberta Association, D., S. & H. E., who was elected Chairman of the Heating Committee for 1923-24.

your serious consideration as it is essential that we keep moving forward.

Article 4. You will notice that a proposition will be made to have an exhibit at the exhibitions held at the four cities of the province, consisting of a septic tank in miniature form, water pressure systems in operation, plumbing fixtures connected showing the concealed work as well as the finished, and a display of heating goods, with a banner hung in a conspicuous place with the name and address of every member of the association. This display could be shipped from point to point, and such an exhibit I am sure would draw a great deal of attention, be an education to the public and an excellent advertising medium for ourselves. I sincerely hope that every one present will see the advantage of such a scheme and will get behind it and make it go over with great success.

R. J. Priestly.

Report of Vice-president C. R. Frost was as follows:

"The conditions of trade do not seem to have improved much since our last convention at Calgary. We have had a fairly busy year but conditions are not what they should be. We have not had the support from the wholesalers that we might have had. Our Edmonton association is in a good financial condition, with about the same membership as last year.

"I am sorry to say that we have not accomplished what we would have wished with our Provincial Health Act; the chairman of your Legislative Committee will give you what information we have.

"There are a few points I wish to bring before the members of this association:

- (1) We should try to co-operate more closely with our plumbing inspectors, and to live more closely to our present by-law. In regard to material some of our members are not insisting on the proper grade of material, especially in repair work. The jobbers are equally at fault in this respect as they will continue to stock material that is prohibited. If the jobbers would carry nothing but material of the standard gauge and weight it would help out the work of the plumbing inspectors.
- (2) There is one other item that I would like to see prohibited from use in Alberta. I refer to the wood strip closet seat. We use a porcelain closet bowl; this is sani-

tary; but we put on this an article that makes the fixture far from sanitary, and especially is this true in regard to public lavatories.

"We have been holding our association

together in the hope that conditions will improve. Western Canada seems to be the last place on the continent to come back to normal, but 'the blackest cloud has a silver lining'; we may not be able to see it, but it is there."

C. R. Frost.

Making Little Progress Along Lines of Apprenticeship

R EPORT of Apprenticeship Committees, Alberta Assn., D., S., & H. E.:

As a member of the apprentice committee in the Edmonton district I have to report that there have been no classes held this season as there were only three enrolled and that was not sufficient for the opening of a class for theory and practical instruction in plumbing.

Although there seems to be more need than ever for such classes, as the men that were wished on me last spring were a "joke," no, I would say a tragedy.

However, we have ourselves to blame as we will not take in apprentices to serve an apprenticeship, but simply use them as helpers and then turn them off when we get a little quiet.

Gentlemen, the question of good tradesmen is getting to be serious and the only remedy I can see is to raise them. Hoping this problem will get your earnest consideration.

JAS. CARVER, Edmonton District.

Calgary Report

As a member of the Calgary District of the Apprentice Committee, I beg to report as follows:

Says Some Jobbers Still Try to Sell Plumbers Material Not in Accordance With Regulations

R EPORT of Legislative Committee, Alberta Assn. D. S. & H. E., was as follows:

(1) We have had several conferences with Mr. R. B. Owens, sanitary engineer, during the year in connection with some of the clauses in the revised regulations and the progress being made in regard to same. We were hopeful that the whole matter would have been cleared up in time to give a definite report regarding same at this convention, but in this we have been disappointed, for, although practically all the clauses as amended have been passed by the Cabinet, those clauses dealing with the licensing of master plumbers and the appointing of an Examining and Licensing Board are still to be definitely dealt with. Further consideration of these matters will not be given by the Cabinet until after the close of the Legislature which is now in session and what the final outcome of this consideration will be we cannot forecast. Certain legislation may be passed which may make it possible for us to attain our goal in this connection but only at the close of this sitting of the

The number of apprentices being raised in Calgary at the present moment is very small, in fact five or six is all the city can boast of. A class was started in the technical school last year but was taken more advantage of by the man than by the apprentice. The subjects were mainly shop mathematics and drawing as applied to plumbing, and there were about ten men and three apprentices attended.

The class was not taken up this year. Outside of this very little interest is being taken with regard to where we are going to get our future tradesmen. Of course conditions have not been favorable, and expenses have been cut to the minimum, but nevertheless unless firms are willing to try and interest boys in the trade, we are making all kinds of trouble for ourselves in the future. Of course the youth of to-day is not attracted with small pay and a long term of apprenticeship, when so many easy jobs can be picked up; so that I am afraid unless firms can make it more attractive for the boys "the trade is going to die with us."

J. H. HAY, Calgary District.

House will we know what has been done in this matter. Under any circumstances this convention should keep in close touch with Mr. Owens, and if necessary with the Minister of Health, in order to keep this matter before them.

(2) Your committee wish to bring to the attention of the members of our association the urgent necessity of each and every member doing his utmost to fulfill all the requirements as laid down in the health regulations relating particularly to our trade. If there are changes which any member or group of members think should be made in any of the clauses of the regulations they should be discussed at this convention and referred to the Legislative Committee for action.

(3) Some of the jobbing houses and some other firms who sell goods to our members still endeavor to have us buy and install goods which are not in accordance with the regulations. We might refer, for sake of example, to two or three items, namely, 20-gauge basin traps and 6-lb. lead bends instead of 16-gauge traps and 8-lb. lead bends as laid

down in the regulations. These are only two of several things which might be mentioned which are not in accordance with the requirements. If we, as an association, ask the Department of Health to place certain clauses and requirements in the health regulations and expect that department to help our business by enforcing these regulations, it is up to us as members of this association, whether doing business on a large or small scale, to live up to the requirements of such regulations and not buy material which is not up to the standard laid down, nor try in the installation of our work to get away with something which does not comply with the regulations.

(4) At the convention last year your committee was instructed to proceed with the incorporation of our association under the Ordinance respecting Benevolent Societies, which we have carried out and the certificate of incorporation is submitted herewith, also a copy of the incorporation papers as filed with the Registrar of Joint Stock Companies.

W. H. Kelcher,
Chairman, Legislative Committee.

ARE NOW FIRST-RATE PLUMBERS

Port Arthur, Ont.—Examinations upon which successful candidates will receive licenses to act as plumbers in Port Arthur have been completed at the Collegiate Institute and the following were successful in obtaining licenses: T. Bennett, Nick Pacuzzo and Hugh McRae, Jr. Candidates were examined for practical work, theory and chart tests and all three obtained over eighty per cent., the required for pass being seventy-five per cent. The practical examination required two and a half hours and all three candidates finished in two hours. The Board of Examiners who held the examinations included J. W. Barnes, chairman; R. A. Shaw, representing the journeymen plumbers, and A. J. Peckett, inspector and secretary.

The plumbing classes held in the Collegiate this year ended March 31. Much work was undertaken and the apprentices were congratulated by their instructor, A. J. Peckett. Attending the classes were: Hugh McRae, Alex. McRae, Nick Pacuzzo, Matt Slater, A. Peckett, Jr., Peter Giraitt, Fred Shirley, T. Bennett, Louis Anderson, Norman McGregor, John Sime, Jr., Frank Peltier.

Nick Pacuzzo, Alex. McRae, Matt Slater and Peter Giraitt were presented with certificates by Principal Howell for faithful attendance at classes, which were held two nights each week from October 1 to March 31.

NOT EXCLUSIVE RIGHTS

The statement inadvertently was made in a recent issue that the "exclusive" rights in Canada had been secured for the reproduction of the dealer helps of the National Trade Extension Bureau. Sanitary Engineer has secured the rights for the reproduction of these helps but this is not "exclusive."



Delegates to Annual Convention, Alberta Society, Domestic Sanitary and Heating Engineers, at Medicine Hat.

Would Abolish District Committees and Appoint Organizer

R EPORT of Executive Committee, Alberta Association D. S. & H. E. "We have endeavored to the best of our ability to carry out all the instructions and recommendations allotted to us at the session of 1922, held in Calgary, namely,

- (1) To send letters to the Alberta wholesalers, and the manufacturers of plumbing and heating goods, protesting against the loss of labor due to defect ve material;
- (2) To the manufacturers of enameled ware in reference to the high cost of their product;
- (3) Letters to the railway commission protesting against the high freight rates.

"We are of the opinion that it is the intention of the officers to bring to your attention propositions which we feel will be of benefit to our organization, such as an exhibit at the principal cities during the Fair week, of the proper installation of plumbing and the disposal of sewage in rural districts; also a proposition to dispense with the district committees and appoint an organizer for this purpose. These are very important matters and no doubt will receive due consideration.

"One of the duties of your executive committee is to have charge of the funds of the association and pay all bills contracted. In order for us to fulfil these duties we must have your co-operation in the punctual remittance of dues and moneys due by you to the association. In the past the secretary has gone to our annual meeting with funds practically depleted, with the hope on arrival that will be replenished. This is a bad state of affairs, and a poor manner of conducting business, and the blame truly lies with the membership at large, and furthermore does not give the secretary an opportunity to close his books and have

a proper financial statement to submit to the association for consideration. You elect the officers of the association believing that they will carry out their duties. A prompt observance of this

matter on your part will enable them to do so. Send all moneys due to the secretary each and every month so that it will be possible for him to close his books on December 31st, and thus show a desire on your part to assist us."

Respectfully submitted,

Executive Committee—R. J. Priestly, C. R. Frost, H. C. Pheiphs, D. Campbell, G. W. Henderson.

Canadian Society Convention is Unlikely

Apathy on Part of Various Provincial Bodies Responsible for Announcement — Convention Would Not be Representative of the Country

MONTREAL.—There is every likelihood at the present moment that for the second consecutive year the Canadian Society of Domestic Heating and Sanitary Engineers will not meet in general convention, despite the fact that it has been the announced intention of the executive to hold the convention in Montreal early in June.

Announcement to this effect was made this week by President A. Latourelle, apathy on the part of the different provincial organizations being given as the reason for this change of plans. Early in March a meeting of the sub-committee of the society's executive met in this city, making preliminary plans for the convention which, according to the constitution, is to be held in June of each year. The second week in June was selected as the most suitable but before setting any definite dates for the convention, Secretary D. K. Trotter was instructed to communicate with the whole executive, comprising the presidents of the various provincial associations.

"This was done," stated Mr. Latourelle, in speaking to a representative of Sanitary Engineer on the subject, "but Mr. Trotter informs me that to date he has had but two or three replies and even these do not show evidences of sufficient interest in the proposed convention to warrant our going ahead with

the expense of making the necessary preparations."

President Latourelle has called a meeting of the sub-committee for Thursday, May 17, when the matter will be taken up, discussed at length and finally disposed of, but from present indications it is already settled by the weak response made by the organizations affiliated with the Canadian society.

Asked for any possible reason or explanation of the attitude being taken by the other provinces, Mr. Latourelle stated that he was at a loss to account for it.

"We have a local organization here in Montreal and get good results from it, but I don't know what is the matter with the others," he declared. "Most of them have not even replied to Mr. Trotter."

Mr. Latourelle added that while if the convention were held, even though there were a good number of outside plumbers present, from present indications they would only be from this province and that this was not what was wanted but a convention which would be representative of the national scope of the Canadian Society of Domestic Heating and Sanitary Engineers.

Locally, the executive have been given co-operation by the Montreal Master Plumbers' Association, it being at their invitation that it was decided to hold the convention in this city.

"We're a Funny Trade—All of Us Bein' Suspishus of the Other Feller and Thinkin' Our Own Skirts is Clean All the Time"—Jerry

Jerry Takes a Trip to the Big City and Wonders Why the City Plumbers Don't Get Together More

With apologies to Ring Lardner. Written for Sanitary Engineer by MAJOR L. L. ANTHERS, Managing Director, Anthes Foundry Co., Ltd., Toronto.

Dear Al:

O Boy these bammy breases from the South maikes you feel like a 2-yr.-old & you fergit all abt the grouches & pesticism of the long cold days & the long cold nites witch set in abt. Oct. & was still goin strong last wk. Life has a diff. outlook if you no wat I meen.

Spring is a wonderful thing. Yer sole gets fulla poultry & you feal like a bird that aint got no caires in the world. You fergit all abt. frosen pipes & radyaters & etc. & begins to think of fishin & baseball & crokay & marbils & spinning tops & other lite deversions. After the winter is all over you fergit you ever had enny trubbles & you begin to taik hart onct moar.

I was down to Tronto last weak witch as you no Al is the big Meteropolos of thees partz. Thats were all the wize guys lives or thinks they doz. & were theres moar chickens on the sts. than their is on all the farms in our countie. The fellers down their aint such a bad lot wen you git 2 no them but I aint met ennyboddy wot noes em yet. You sorta xpect. 2 meet with a lot of seperior intelligence in the city were fellers nose all abt. the cost of doin bizness & how to figger & all that but befor I got their I come 2 the concln. that theirs as menny guessers in the city as wat their is in the countrie only moar numerikly seein as their is more 2 the sq. ft. in the city than they is in the countrie. However it is not my desire nor intentn. 2 mock the city fellers but only simpithise with them only I dont see why they dont get tergether moar & organize fer the good of the traide wen they have such a good chanct on acct. of their being so menny. Weere a funny traide all of us bein suspishus of the other feller & thinkin our own skirts is clean all the time.

Well wile I was in the big burg some of the fellers ast me to a meetin & I bean a gest was ast 2 say a few werds. Seein as only abt. ½ the gang what was invited had terned up I immed. tocked on organyzation & how nessery it was fer everyboddy 2 B present wen a

meetin is called. Then I begin 2 tock abt. baseball & as how it was Kwoperation & teem play wat maid us win the pennant. I tocked of the way we werked 2 win in 1916 & as how we eat up the hole big league & then cleened up the post serious fer dissert. I ast them if theyd remembered wat we done that yeer & wen no 1 seamed 2 hev herd wat we done I pointed out how nessery it is 2 reed the Daley paipers 2 keep up with the timse. 1 of the fellers settin neer sed that abt. that time all they was readin was daily orders in France upon witch I changed the subjek.

After I finnishd I ast them if they wanted 2 ast enny questns. 1 feller ast me how menny plumbrs they was in Tarraboone & I told him 1 bein us & annother feller naimed Spuds wat werked into a woodshed.

He then ast if us & Spuds Kwoperated & I sez no becaws Spuds was a low down cuss.



Jerry throws off all the work-a-day duds and takes a trip to the big city. Read what he thinks of the city plumbers.

He then ast if we ever tride to Kwoperate & I retortuned no becaws we dident reconige him as a ligitimit plumber & he then ast why & I finely quit.

I herd sumboddy say somthin abt. charitie beginnin at home & I dident feal as comfertible as I had bean.

Then annother guy got up & begin to speal on Kwoperation. He sed that the hole trubble with the traide was that everyboddy waited fer the other feller 2 maike the 1st move. That was why everyboddy was stallin & the traide werent gettin nowhears. He sed that in the plumbing bizness their shd. bee a lot of give & taikie but not as sum fellers seam 2 think such as give a feller a push & then taikie wat hees got from him.

Thinkin ide taikie a rize outta him I ast him if he dident reemember the text wat sez 2 hymn what has shall b gave & 2 hymn what aint shall b took wat he aint got. You know Al I allus was strong on that skripshul stuff.

He had a quick cumback & sez the feller musta bean a plumber becaws a plumber aint never got nothin. However he says that aint the point he wants 2 maike wen he sez the traide shld. give & taikie. He pertested that they shld shaire 1 anothers trubbles as if a plumber dident have anuff trubbles of his own without sharin the trubbles of annother plumber.

But the guy stuck 2 his argament & finely he had me thinkin & I begin 2 feel like the crook who taikes chainge offa the collection plaite in charch. Its strainge how sum fellers can maike you feal that you have gave yr. nayber a dirty deel & I maide up my mind that wen I got hoame Ide go over to Bill Spuds & berry his hatchit.

Annother guy what they called a mannafer give a tock on skeptie tanx together with a lot of other stuff pretaining 2 the traide. He also begin 2 opolegise fer split hubs & sandholes & etc. tellin how they happened & as how wen a plumber bot sum difective goods if he wld. only send a defective peace with the naime & the number onto it the

mfr. eld. wrecktify the trubble. No mfr. what has enny respex fer his goods wants 2 get a bum naime & is only 2 glad 2 be able 2 traice trubble so that it went aeur agen.

He sed as how hard it was 2 controle the humin yelloment watever that is & that bum stuff gets past sumtimes no matter how cairful the mfr. wants 2 B. I come to the concln. that even mfrs. has trubbles as well as plumbers.

After the guy had tolde his story he ast those what wanted 2 ast questns. 2 ast them & he was kept bizzy abt. 10 mins anserin questns.

The fellers sune found out sum things what has bean puzzlin them fer a long time & I thot as how it was a pity their werent moar meetins of the kind wear more mfrs. sez as how no mfr was 2 big 2 adress a mating of the trade & if the traide was well orginized as how no mfr. eld. reefuze 2 speek no matter how big he thot he was.

From the factory 2 the compleat installn. of a job was a serious of lynx like a chaine he claimed & if 1 link was week the chaine would bust. He sez as how everyboddy connected with the manafacher & destrebutiön & installn. of plumbing supplize was lynx & as how they shld. mutuelly strenthen 1 an-nuther. It was good dope & I hopes as how the traide will orgenize & give the the mfrs. a chanet to maike there confessns. regardin there goods.

After the meatin grub was searved & the gang gathered arnd. the taibles in groops & swapped xperyenees. The Pres. explnd. 2 me as how thees gather-ins permoted soshability & if enny boddy had a grouch on enny boddy else thade lay there cards on the taible & as a rool noboddy had moar than 4 aces & those wat was onct ennemies wld. shaike hands & bee frends until the next time.

Booze is awful hard 2 get in Tronto now & the stuff I got dident do me no good. Ime off it fer life. Aside from this a plesent time was had.

Yrs. as ever,

JERRY.

MONTREAL PLUMBERS AGREE ON INCREASED WAGE SCALE

After negotiations covering a period of two months, an agreement has finally been signed between the Master Plumbers' Association of Montreal and the Catholic and National Syndicate Plumbers' and Steamfitters' Union, calling for an all-round increase of five cents per hour, effective May 1, and to last for two years. This fixes the new rates at



"There's more chickens on the streets in Toronto than there is on all the farms in our countie."

75 cents an hour for A men, 70 cents an hour for B men, and 65 cents an hour for

C men, the latter scale generally being for first-year men who have served their apprenticeships.

SANITARY ENGINEER HANDLES QUESTIONS AND ANSWERS CLEARLY

"I have always been deeply interested in your Questions and Answers column, and I certainly like the way you handle your subjects as you always make them so clear."

"Your subjects such as septic tanks, bigger and better business, rural plumbing work and the markets have all been exceptionally good, as have many other subjects treated by you."

"I think your paper has been better this year than for the last five years."

(Signed) George Duesberry,
71 Pinnacle St., Belleville, Ont.

As in the past, the "open shop" clause remains in the agreement. For six months hours are to be 49 per week, with 44 hours for the balance. Time and a half is to be paid on Saturday afternoons and after the regular hours until midnight. From midnight to 7 a.m. on Sundays and on legal holidays double time must be paid.

The Catholic and National Syndicate supplies the major portion of plumbing help to the Montreal trade, many non-Catholics being found in the organization. While the employers are not bound to pay non-union plumbers at these rates, the same scale has been used by most employers in the past.

Details Process of Manufacture of Wrought Iron Pipe

H. E. Rooke, Sales Manager Page, Hersey Co., Ltd., Chief Speaker at Final Meeting for Season of Hamilton Plumbers—
Meetings to be Resumed on Broader Scale Next Fall

ON WEDNESDAY evening, May 2, was held the closing dinner of the most interesting series of such meetings held during the past winter by the Hamilton plumbers, and which was referred to at some length in the last issue of Sanitary Engineer.

This final dinner for the season was in every way the most successful of the series, and speaks well for the success of these splendid gatherings when they are resumed next fall.



C. F. ROGERS

Manager in Hamilton of Standard Sanitary Mfg. Co., who has been one of the prime movers in connection with the series of helpful meetings held this winter among the plumbers of Hamilton.

Promptly at 6.15 upwards of one hundred sanitary engineers of Hamilton, together with visitors from Toronto, London and Galt, sat down to an excellent dinner, served in the Arcade Restaurant. A sparkling musical program consisted of duets by Messrs. Pollard and Jenkins and Scottish songs and patter by Sir Harry Lauder, who was very cleverly impersonated on this occasion by Wee Sandy MacDonald, son of one of the members, in costume. Much of the success of these meetings is due to the snappy way in which Sergeant-at-Arms L. Rogers and his alarm clock keeps everyone on his toes, and on time to the minute.

Mr. Gordon Stewart announced the winners of the various contests held by the bowling league, and the handsome Standard Sanitary Silver Cup was presented by the chairman, Mr. C. F. Rogers, local manager of Standard Sanitary Mfg. Co., to Journeymen Plumbers' Local Union No. 67 who were high team for the season. Other prizes presented by Empire Brass Mfg. Co., Greenfield Tap and Die Corp., Cunningham & Hill, Ltd., Galt Brass Co. and Canadian Brass Co., all of whom had representatives at the meeting, were also presented to the more skilful (or lucky) bowlers.

Prizes Donated

The highest individual score for the season. Prize of \$10 donated by the League was won by J. P. Robb, of journeymen's team.

The highest team score for any one night. Prize of \$10 was won by the journeymen's team.

The highest individual score for three games. Prize of \$5 was won by John Allan, of Standard Sanitary Mfg. Co.

Bath seat donated by Cunningham & Hill, Toronto, was presented by Bert McLaren to Wm. Newell of M.P. team No. 2.

Two pipe wrenches donated by Greenfield Tap & Die Co., of Galt, were presented by P. A. Moore, president of Hamilton Society of Sanitary and Heating Engineers. 1-14 in. wrench to H. Mellon of journeymen's team; 1-10 in. wrench to J. Kerr of M. P. team No. 1.

The highest score of any individual game, prize of \$2, was won by E. Wilson, of Marks & Co.

The booby prize went to Wm. Bachalake, of M. P. team No. 1.

The two brass candle sticks donated by Empire Mfg. Co., London, were presented by A. Branston to G. O. Rinman.

The League standing for the season was as follows:

	Won	Lost
Journeymen	19	11
Standard Sanitary Co. . .	17	13
Crane, Ltd.	16	14
Master Plumbers No. 1	14	16
" " No. 2	14	16
Marks & Co.	10	20

Plans for Next Fall

Those present discussed the idea of continuing these dinners again next year and forming an organization having a standard name, with membership fees to cover general expenses such as printing, etc. They proposed to call a meeting in September and this also received a unanimous vote.

Norman Swanson, Toronto, spoke for the visiting journeymen. H. S. Wallace, sales manager for Toronto Hardware Mfg. Co., gave a short and spicy address and made some nice references to the old days when he used to ply his trade in Hamilton, and complimented the plumbers in getting together in this social manner.

Mr. Stewart proposed having a soft ball league formed in the near future to consist of four teams.



WM. NEWELL

Master plumber of Hamilton, Ont., who has given considerable assistance in connection with the series of meetings held among the craft in that city during the past winter.

H. E. Rooke Speaks

Promptly on scheduled time the speaker of the evening, Mr. H. E. Rooke, sales manager, Page, Hersey Co., Limited, was introduced by Mr. Charles Marks, of Marks, Limited, who reminded his hearers that Harry Rooke was an old Hamilton boy, having gained his first knowledge of the hardware business with the Wood-Vallance Co. there.

Mr. Rooke, on rising to speak, was greeted with a very warm reception, and he replied by extending a most hearty invitation to the plumbers and sanitary engineers of Hamilton to set an early date for a visit of inspection to the Page,

Hersey plant at Welland. He assured the gathering they would be interested in seeing the various processes of manufacture from the raw material stage through the huge furnaces, rolls, bending and welding machines, to the finished article, the wrought iron pipe which they are using daily in their business. It is altogether likely that this invitation will be accepted and a trip to Welland will be planned for an early date in the month of July.

Traces Process of Manufacture

Mr. Rooke, whose subject was, "The Men We Sell," first gave an interesting description of various kinds of pipe, tracing its development from the old hand-welded or blacksmith-style of iron pipe, then the revolution created by the discovery of the Bessemer process in 1876, and on down to the highly developed, heavy machine product of today.

The speaker then discussed the selling policy of his own company, pointing out



PERCY A. MOORE

President Hamilton Master Plumbers' Association, who has given considerable time and attention to the educational interests of the craft in Hamilton, in connection with the series of meetings held in that city this winter.

that there were undoubted advantages to the ultimate consumer in marketing such a product as heavy iron pipe through jobbers located at strategic shipping points throughout the country as they do. Were they to attempt to sell to the trade direct it would be necessary to establish warehouses of their own in practically every city of any size, and the overhead expense would be prohibitive. Mr. Rooke concluded his very interesting and instructive talk with an outline of the export trade done by the Page, Hersey Co. with Australia, New Zealand, India and South Africa, and pointed out that pipe was put on the market in the same way the world over.

R. Binette, general organizer for the building trades in the Catholic and National Union, returned to Montreal from Hull and Ottawa where he has signed up a contract for the Hull local of the Catholic and National Union of Plumbers for one year at 75 cents an hour.

New Goods of Interest to the Plumbing Trade

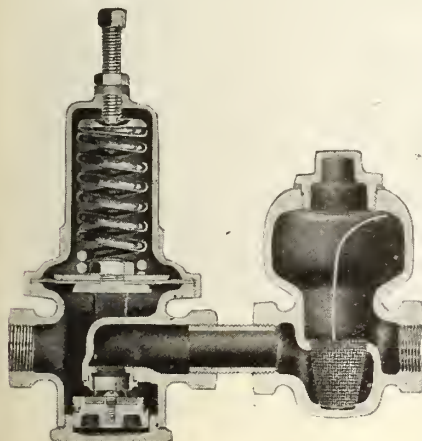
Pressure Reducing Valves

H. Mueller Mfg. Co. Ltd., Sarnia, Ont., have placed on the market a new improved type of pressure reducing and regulating valve for use on cold water pipe lines.

The new valve is designed particularly for domestic water service and is said to maintain a constant delivery pressure, regardless of variation in the initial intake pressure. It is also said to be valuable as a protection for plumbing fixtures.

The points of superiority claimed for the new valve include the following; made of bronze and therefore it is non-corrosive, full seat opening means unrestricted flow of water, special sensitive composition diaphragm insuring accuracy and interchangeable wearing parts making replacements rapid and simple.

The sectional view of the new valve



appearing herewith shows the strainer on the intake side which is a feature designed to protect the working parts from sand and pipe scale.

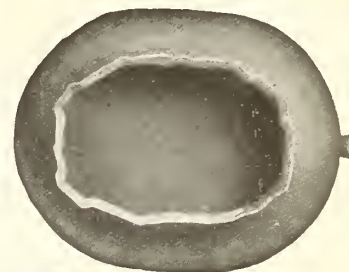
Home Water Plant

The Canadian Fairbanks-Morse Co. Ltd., Montreal, are now placing on the market their new home water plant for deep wells, a plant suited to those installations where the water lift is greater than 22 feet—the limit of the shallow well plant. The entire mechanism is enclosed in a neat appearing cast iron housing but is so built that the entire working mechanism is easily accessible. The drive is direct, the worm that drives the chain being directly connected through a flexible coupling to a vertical motor, the motor being of the full ball-bearing type. One of the features claimed for the plant is the quietness of its operation, the worm and gear meshing quietly in a bath of oil. The pump can be furnished with an automatic float switch for open tank service or it may be provided with a pressure switch and pressure tank for a pneumatic system. When the pneumatic system is ordered the pump is equipped with an air compressor.

New Tank Float

The cut above shows a new copper tank float just being put on the market by W. H. Cunningham and Hill, Limited, 269 West Richmond St., Toronto.

Messrs. Cunningham and Hill state that their new float is positively with-



out seams or points of any kind. It is made from the purest electrolytic copper. The price is said to be higher than the ordinary float but the new solid shell float is guaranteed for 5 years and the manufacturers claim it will prove the most economical in the long run.

MAY APPOINT ORGANIZING SECRETARY

(Continued from page 16)

address, which dealt with the value of organization. He enthused over the future prospects of the association which would follow upon the efforts of the members to build not only the society but the industry as a whole.

P. C. Mansell, chairman of the Legislation Committee, gave an outline of developments during the year, pointing out the present situation regarding the proposed Ontario plumbing by-law.

Ross Belyea, chairman, Educational Committee, had little to report on educational work, pointing out that the machinery of the association was not sufficient at present to put any extensive educational campaign into effect.

Short Course Lectures Well Attended

Value of Sanitation on the Farm—Hundreds of Young Farmer Boys and Girls Attend Three Month Lectures—Pneumatic Water Systems Used for Practical Demonstration Work

Written specially for Sanitary Engineer by EDWIN NEWSOME, Consulting Sanitary and Heating Engineer.

IT WOULD be quite a task for one to even guess at the probable amount of good that has been accomplished by those who launched, conducted, and otherwise took part in the short courses recently concluded in eight provinces in Ontario.

These courses were in the form of series of lectures and practical demonstrations, blackboard sketches, English, mathematics, literature, horticulture, bee-keeping, animal husbandry, farm mechanics, sanitation on the farm, including sanitary plumbing; the value of same on farm homes; sanitary heating, ventilation, water supply and sewage disposal systems, pumping, how to locate wells, and where, the proper installation of such apparatus which go to make up such systems that deal with rural sanitation in its broader sense.

The attendance at these courses of lectures really reflects great credit to the students which included boys and girls, each being conducted in separate lecture rooms. The girls took up subjects relative to domestic science, cooking, washing, millinery, literature, English and mathematics, household management, and special studies were prepared for the girls relative to water supply, bathrooms and kitchen equipment and disposal systems.

The writer found each and every student particularly interested in the subjects he prepared and lectured upon.

Notes were taken down and a set of specially prepared and illustrated sheets were distributed, one to each student. These sheets contained twenty-two (22) practical drawings with quantity of reading matter in connection with and describing each drawing. The sheets numbered 13 and dealt with the following subjects:

Various kinds and styles of hand pumps.

Various kinds of wells, designs, etc.

Details of pump cylinders and valves. Sources of water, (four), springs, deep and surface.

Poor and good location of wells and pumps.

Well and gasoline driven pneumatic water system, located near house.

Instruction sheet showing proper location of septic tank fittings and other details in connection with construction of septic tanks. Position and height of fittings and syphon.

How to install hydraulic rams and details of ram construction and working.

Hand operated pneumatic water supply systems.

Plan and elevation of septic tank where layout of disposal system where ground is fairly level.

Plan and elevation of septic tank where situated near lake, river or stream, showing details of filtering effluent.

The writer took up most of each day for eight days in eight counties, and the

attendance ran (boys) from 15 to 60 at the different centres. The lectures were planned in such a manner as took up about 3 days in subjects under heading of farm mechanics. Care and use of all manner of tools, repair work of all kinds that would not require power machinery. Care and repair of pumps, the diagnosing of pump troubles, the principles of various designs of pumps and proper choice of same. Rope splicing and belt repairing.

Five days, or most of that time, was devoted to lectures showing the vast importance of sanitary plumbing and water supply on the farm. Reasons why attic tanks are unsanitary. Reasons why the cesspool is a menace to health. Value in dollar and cents of a properly designed septic tank and sewage disposal system complete. Working equipment, motors, pumps, some loosened up to show the working parts, were loaned by manufacturers. A model septic tank, all to prove the value as an investment of all such apparatus as would fit every farm and rural home with city conveniences. It was surprising how easy it was to convince those in attendance at these courses that real value was there.

Discussions were indulged in. Questions were asked and answered, and when the utility of modern city conveniences was explained, every student realized that good value was there. Approximate costs in dollars and cents were given.



Edwin Newsome, contributing editor Sanitary Engineer, shown demonstrating to part of his class at Clinton, Ont., the use of a pneumatic pump.



The large class at Binbrook, Ont., which attended the three months short-course lectures by Edwin Newsome, lecturing on behalf of the Ontario Government throughout the rural sections of Ontario. These bright young men and women have become boosters for modern sanitary equipment and they have a working knowledge of how such equipment should be installed and operated.

and upon such cost value in service found to be all to be desired, and compared very favorably, in fact more so, than any other capital investment.

Apart, and in addition to the lectures conducted during the day, a special lecture, illustrated by lantern slides, was delivered by the writer. These lectures were advertised, using posters, postcards and handbills as mediums, as well as local newspaper advertisements and editors' notes and news columns. And to see how well these lectures were attended proved conclusively that the population of rural Canada is interested in, and do appreciate, the service that can be rendered by each home being fitted up with city conveniences.

The local town papers gave these lectures a lot of publicity and, typical of the reports and space devoted to these lectures, can be judged by one which appeared in the Wellington News, where 175 persons were present. Despite the fact that a blizzard was blowing, accompanied with a violent snow storm, people drove as far as 12 miles through it all to hear the lecture. The report, which appeared in the Wellington News, Prince Edward County, is well worth reading and hence we have decided to reprint same.

LECTURER DISCUSSES FARM HOME PROBLEMS

Mr. Edwin Newsome, Consulting Engineer Talks On Rural Sanitation, Water Supply and Sewage Disposal Systems—Nearly Seventy Slides Shown.

"A very interesting and valuable lecture illustrated by lantern slides was delivered by Mr. Edwin Newsome, Consulting Sanitary and Heating Engineer, Weston, at the Consolidated school, Wellington, on Tuesday, January 16th.

"Mr. Newsome has been to Wellington for the past two weeks, lecturing to the students at the Short Courses being conducted by the Ontario government under the direction of Mr. A. P. MacVannel, Agricultural representative for this county.

"The subject of the lecture was that of rural and farm sanitation, water supply and sewage disposal systems and the lecturer showed his audience in word and picture, conditions as they are, true to life on the farm. With all the inconveniences that have to be put up with, the old wood pump, a snow storm raging and the farmer thawing out the frozen pump, friend wife emptying waste water out at the back door, also the filthy outdoor privy. The lecturer then described how it is possible to have city conveniences on the farm and in every rural home. As a matter of fact the cost of these conveniences, modern bathroom, modern sink, septic tank to sanitary disposal of sewage and pneumatic water supply systems, can be procured at less cost than the city dweller has to pay for the same conveniences.

"The annual taxes in the city of Toronto, directly and indirectly amount to \$43.34 cents per person and this amount simply covers the cost of streets, sewers and schools. And to raise this money every home or other building has to be mortgaged by the city corporation to the extent at present of over 60 per cent. Whereas a farmer buying his own equipment could get all these conveniences including a good furnace for about \$1,000 at 6 per cent., only costing \$60 per year. Who, said the speaker, would not pay \$5 a month to have hot and cold water at the sink, be able to have a bath, hot or cold, as often as one wished, or give the wife a chance to be happy day in and day out by making hard work easy for her.

"The farmer's wife is a drudge in comparison to the wife of a city man. No city man would ever dream of asking his wife and family to get along without modern conveniences. As a matter of fact the health authorities of a city or incorporated town will not let anyone build a house unless a bathroom and all other modern sanitary plumbing fixtures are installed in every home.

"If you were to walk down some of the streets in the older sections of Toronto you would find a sign nailed on

the door 'Insanitary, unfit for human habitation.' And ladies and gentlemen, I venture to say and to prove that less than 5 per cent. of the farm and rural homes have the proper conveniences to enable their occupants to live as they ought to have the privilege of doing."

It might be stated (but cannot be proved) that the average farmer cannot afford to put a modern bathroom and kitchen sink, etc., in his home. Bosh! Rubbish! In the year 1921 the government of Ontario issued 181,978 auto licenses, and out of that number 64,045 were taken out by farmers. Farmers took out 1,859 auto truck licenses and 428 motorcycle licenses in the same year. "Now," said the lecturer, "do not think I wish to infer that farmers should not own autos. I believe they should but I most emphatically assert that no auto is so essential to human comfort and human necessity as is a modern bathroom, hot and cold water at the sink, good water supply and sewage disposal system and furnace. And all these can be procured for the price of a fairly decent car.

"The reason why we are confronted with the depopulation of our farming communities is largely because of the lack of city conveniences. Can we expect anything else? This depopulation is brought about by the fact that our old folks get tired of farm drudgery and our young folk have the distastefulness born in their very souls.

"Every man, whether farmer or city man, should help to make life easier for the mother of the farmer to be by doing all in our power to assist that mother farmer.

"If the mother on a farm home is assisted, if her work is made a pleasure, then her babies are more likely to live and love their labors when they grow up, because she, their mother (even when her babies were yet unborn) was contented, happy and interested in her work.

"If health authorities refuse to allow city homes to be used as habitations where no sanitary plumbing is installed.

(Continued on page 46)

How Plumbers Should Figure Profits

Percentage of Profit Should be Based on Selling Price Rather Than Cost—A Profit Schedule to Help the Plumber—A Case in Point

IT HAS become a custom of merchants, in referring to the cost of doing business, to speak of a given percentage on sales, as for example: If the net sales for a given year were \$60,000, and the cost of operation was \$20,000, we would refer to our cost of business as 33 1-3 per cent.—that is, 33 1-3 per cent. of net sales.

In determining what margin of profit to place upon our goods we have become accustomed to speak likewise in percentages, but in this instance, unfortunately, we have almost invariably spoken in percentages upon the cost of the goods to be sold, rather than in percentages of the retail or selling price.

For example: If we have bought a bill of goods for \$1,000, we say that we will add a profit of 50 per cent. and obtain \$1,500 for this particular merchandise.

This custom has caused endless confusion and frequently great loss on the part of those who are not familiar with accounting methods and the principles of good merchandising. It has been frequently assumed in fact, that if the volume of sales was \$75,000 and the cost of doing business was \$25,000—33 1-3 per cent.—a mark-up of 50 per cent. on cost would insure a very comfortable margin of net profit; and many a merchant has operated on this assumption to his lasting sorrow.

Among the advantages to be derived from figuring percentages on selling price, rather than on cost, we would include the following: (1) dealing with smaller percentages of profit; (2) elimination of much guesswork in establishing retail prices, through a better acquaintance with the cost of doing business which this revised method would encourage, and (3) a quicker realization of the net profit involved.

Briefly discussing these three advantages, we would say, in the first place, that dealing with smaller percentages of profit will often serve to disabuse the mind of the retailer who doubts whether he is justified in adding to his laid-down invoice cost a percentage that really is essential to his progress. It will similarly correct a mistaken notion in the minds of uninitiated employees and of the general public, who may regard the percentage added to the cost of goods sold as unreasonably large, while they ignore the fact that the invoice cost of merchandise is only one factor in its cost and that to this factor must be added all the costs of doing business.

In the second phase, we believe that dealing with a smaller percentage—the percentage on selling price rather than the percentages on cost—will greatly encourage the merchant in his determination to know at all times the actual cost of doing business in order that his mark-up may provide for all the factors of this cost and for a reasonable percentage of net profit.

The third advantage is explained by the fact that the cost of doing business is commonly expressed in a percentage on sales; hence we know that if we base our mark-up likewise on sales our profit must be the difference between these two percentages. If my cost of doing business is 35 per cent. on my sales, and if I mark up a piece of merchandise 45 per cent. on the selling price, I know that my net profit will be 10 per cent. of the selling price.

Probably no other factor is so much to blame for the surprises and disappointments occasioned by the end-of-the-year showing as the incorrect pricing of merchandise, and this incorrect pricing may be attributed chiefly to errors in computing profit percentages.

Many a retailer has been misled by the statement, in itself entirely correct, that goods bought at \$10 a dozen and sold at \$15 a dozen will yield a profit of 50 per cent., and has assumed that because his cost of doing business is around 33 1-3 per cent., he obtains a substantial margin of net profit.

What the retailer overlooks is the fact that the 50 per cent. is a percentage on cost and the 33 1-3 per cent. is a percentage on sales. The truth is that 50 per cent. on cost would yield \$5 a dozen, and 33 1-3 per cent. of \$15 is also \$5, so even though the retailer knows his cost of doing business to be 33 1-3 per cent. and has overlooked no items of expense, such as depreciation, rent of store that is owned, and his own salary, nevertheless he has sold his merchandise without making a profit.

Let us assume that the cost of an article is \$6.60 and that the cost of doing business is 30 per cent., which, with 5 per cent. excise tax, involves a total cost of 35 per cent., and that we desire a 10 per cent. net profit on sales; then it will be necessary to provide for a total mark-up of approximately 45 per cent. of the selling price.

Use Profit Schedule

If the merchant has at hand a profit schedule he can see at a glance that an article that cost \$6.60 and is to be marked up 45 per cent. on the selling price should be priced at \$12. This selling price will take care of the cost of doing business and give him the net profit he is seeking. Were it based on the cost, the percentage that produces this selling price might seem large, but when it is based on selling price it will appear more conservative; what is infinitely more important, it will readily be seen to be essential if the cost of doing business

Have We Heard From You Yet?

Many requests have been received by SANITARY ENGINEER for catalogs of electros and other material available showing prices in this new service. These illustrations will be sold to you at cost, ranging from 30 cents to \$1.00, and they will help greatly to make your advertisements pull business.

Send NOW for complete catalog of illustrations and prices to

SANITARY ENGINEER,
143 University Ave.,
Toronto, Ont.

is to be covered and a reasonable percentage of net profit is to remain.

If we are marking silverware at 60 per cent. on cost, this will be found to be equivalent to 37½ per cent. of selling price and those of us whose cost of doing business is 30 per cent., and over, exclusive of a 5 per cent. tax, and who realize the expenses entailed in such

items as engraving and delivery will recognize the need of greater profits to compensate for handling silverware. If we are marking silverware at 70 per cent. on cost, this is equal to 41 per cent. on selling price, which surely is not unreasonable if the cost of doing business is more than 30 per cent.

An acquaintance of mine in the hard-

ware business took in a new partner, an accountant. The store handled a certain stove that was handled also by a competitor. The wholesale price was \$9.25 and the freight and cartage amounted to 75 cents, making the stove cost \$10, set down in the store. Competition on this

(Continued on next page)

Putting on a "Bath a Day" Campaign

Window display No. 56 by National Trade Extension Bureau

HERE we have a very effective and good-looking window display arrangement that has the distinct advantage for many P. and H. contractors of going comfortably and effectively into a shallow window.

The material and fixtures displayed are any good recessed built-in tub, a built-in overhead shower with mixing valve, shower curtain and rod, and bath stool. The display should be trimmed up with modern fixtures in the way of towel bars, soap dishes, etc., as indicated in the photograph.

The walls surrounding the built-in tub are easily made of beaverboard or some similar wallboard. The tile effect shown in the photograph may be secured easily in either of two ways. It is probable that your lumber yard or planing mill will be able to supply you with the wallboard already marked in a tiled pattern. If such tiled finish wallboard is not procurable, the same effect can be very closely reproduced by lining your tile-board with heavy pencil markings, using a straight-edge. The baseboard shown at the bottom of the walls in front of the tub can be easily enough made out of light lumber, painted to represent tiled effect. The upper walls of your bath room will be of plain beaverboard or other wallboard properly tinted.

It will be easily seen that this effective display can be placed in a window as shallow as four feet in depth, and as narrow as six feet wide.

After you have your outfit built and set up, it will only be necessary to add sign cards as shown in the photograph.

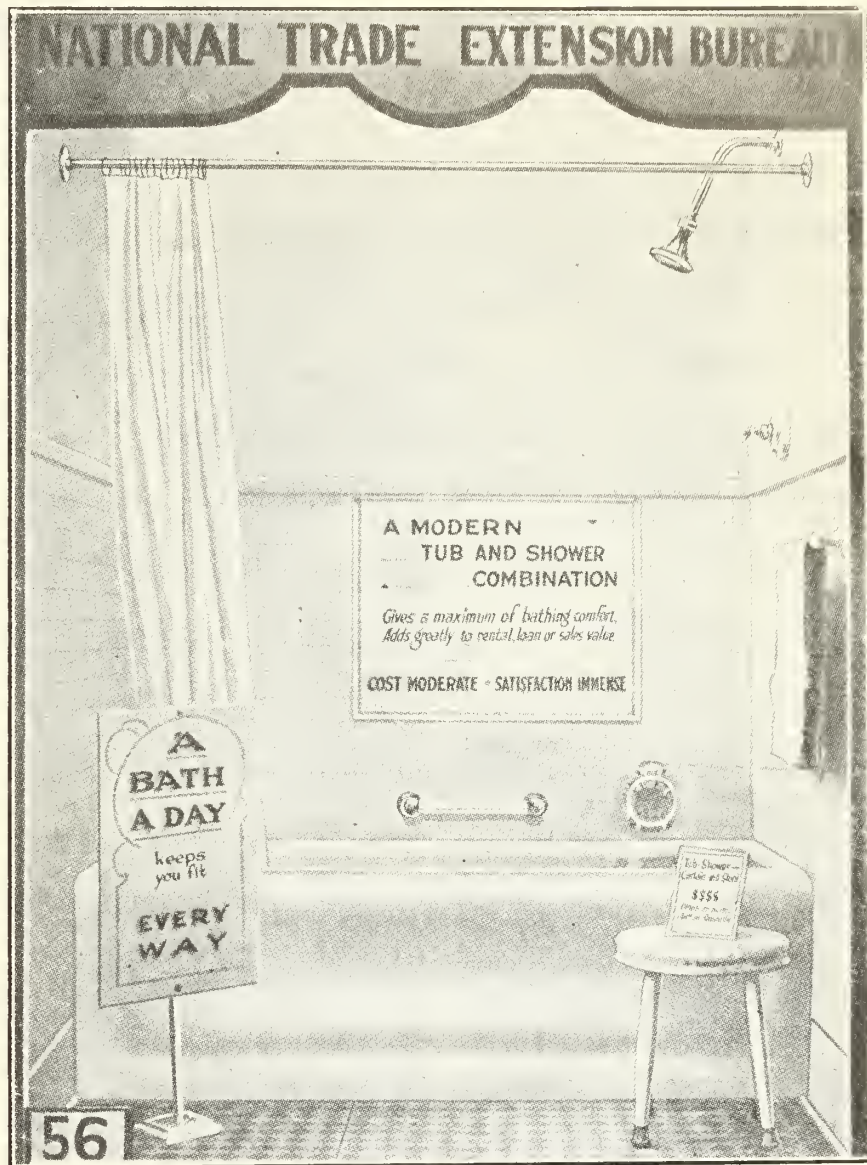
The small display card standing on the bath stool should show the price of the combination you display in the window. The one in the photograph carries the legend, "Tub—Shower—Curtain and Stool \$\$\$\$—Others to suit just as reasonable."

For this display, the floor of your window can be covered with a nice bright colored linoleum in a plain tiled pattern. The effect of this kind of floor covering in connection with this display, will be very good. As in the case with all window displays, all of the fixtures should be shown as if permanently in place. They should be so installed, however—in

every window display—as to be easily removable, to permit frequent changes of your window offerings.

Action of any kind in a window display is always desirable. In this particular display, a very effective result in the way of action could be produced by connecting the shower up to keep the

spray flowing from it, and, of course, connecting the waste of the tub up in some manner to dispose of the flow of water. Putting this display under water in this manner, and keeping the shower flowing, would well repay your effort by the additional attention the display would excite.



Suggested window display to help drive home the principles of a "Bath a Day."

Questions and Answers Regarding Plumbing and Heating Practice

How Should Steam Traps be Placed

Editor, Sanitary Engineer:

I would be pleased if you would tell me whether it makes any difference which way the radiator or drip traps are placed on a vapor system, that is, should the diaphragm be on the flat or on the edge?

Of course in the case of a trap operated with a float, it would have to be placed so that the float would be upright and not on the side, but in case of the Dunham, Trane or McAlear traps, is there any difference, and what effect would it have on a system?

F. A Johnston,
Moncton, N. B.

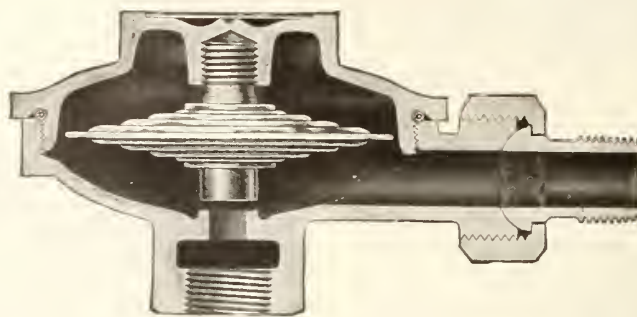
The various forms of traps referred to by our correspondent should all be installed in accordance with manufacturers instructions. First, for the simple reason that if wrongly installed no manufacturer would assume the responsibility of any inefficiency of working. Secondly, there are quite a number of claims made for traps that could not be credited to a heating system if instructions were not followed out.

Regarding the effort of installing, say, a Dunham trap on its side. In the first place the return pipe from the radiator being connected to the radiator would cause a pocket and water would collect in the radiator owing to the fact that there is only a small opening in the trap and the thickness of the nipple would also help to retard the flow of steam or water.

The principle of the Dunham trap is based upon a theory, and one that has proved to be eminently practical, that no matter what the temperature of the steam is, water of condensation must be lower, though very slight and, such being the case, when steam comes in contact with the fixed thermostatic member, it expands and closes the valve. But as soon, (instantly), as the condensate, being cooler, comes in contact with diaphragm, it contracts very slightly and permits the water to return to the boiler, or into the return line of the heating system.

Furthermore this type of trap, being so accurately adjusted before leaving the plant, is not affected by a vacuum, which could take place with a loose disc or diaphragm type of trap.

Most traps, and the McAlear trap is one, which have a loose thermostatic member, would be affected very badly if installed with the diaphragm on the



seat of the valve and prevent working.

There is also a trap with a fixed thermo disc and loose ball. If this trap was placed on the flat the bronze ball would absolutely close the return pipe.

The Trane return trap is one made up of springs which, when subjected to excessive heat, expand and is said to close with steam. It is not a disc or diaphragm trap. The aperture is very small, not too small, of course, but if improperly installed, could not give the service claimed for it. So that, in conclusion, we would strongly advise that all radiator traps be installed as per manufacturers instructions, and when choosing a steam radiator trap the most simple in construction can, as a rule, be counted on as the best. Rivets, springs, pins, trunnions, slots and steam guides, and loose pieces are not likely to form parts of a good radiator trap.—Technical Editor.

HOW PLUMBER SHOULD FIGURE (Continued from previous page)

stove was keen and the partners decided to cut the profit to 10 per cent. net.

The senior partner figured that the cost of doing business was 18 per cent., that a 10 per cent. profit would bring the mark-up to 28 per cent., and that on this basis they could sell the stove at \$12.80. He thought they would make a net profit of \$1.

Let us see what the new partner showed him. As the stove cost \$10 and they wanted to make 28 per cent. gross profit, he considered the selling price as 100 per cent. and the cost price as 72 per cent. or all of the 100 per cent. except the gross profit. Now if \$10 is 72 per cent. of the selling price, it is necessary only to divide \$10 by .72 to find that the selling price must be \$13.89. By the senior partner's method of figuring \$2.30 of the \$2.80 gross profit went to cover the 18 per cent. of doing business, leaving a net profit of 50 cents.

Don't Mix Percentages

Don't get your percentages mixed!

That is the gist of the whole matter of figuring profits. The percentage of profit and the percentage of cost of doing business should be figured on the same basis—on sales.

It is easy to show how the practice of figuring percentages on different bases can result in loss. Suppose our merchant, figuring his cost of doing business at 18 per cent. on sales, had marked up his stove 28 per cent. on cost, to allow for 10 per cent. net profit, and priced it at \$12.80. Now suppose that he fails to sell the stove at that price and decides to mark it down 28 per cent. and sells it, as he supposes, at cost. What happens? He marks it down 28 per cent. of the selling price of \$3.58, sells it for \$9.22 and sustains an actual loss of 78c.

In this connection the following table may be found useful:

5	%	on cost is	4 3/4	%	on selling price.
7 1/2	%	on cost is	7	%	on selling price.
10	%	on cost is	9	%	on selling price.
12 1/2	%	on cost is	11 1/4	%	on selling price.
15	%	on cost is	13	%	on selling price.
16 2-3	%	on cost is	14 1-4	%	on selling price.
20	%	on cost is	16 2-3	%	on selling price.
25	%	on cost is	20	%	on selling price.
30	%	on cost is	23	%	on selling price.
33 1-3	%	on cost is	25	%	on selling price.
40	%	on cost is	28 1-2	%	on selling price.
45	%	on cost is	31	%	on selling price.
50	%	on cost is	33 1-3	%	on selling price.
55	%	on cost is	35 1-2	%	on selling price.
60	%	on cost is	37 1-2	%	on selling price.
65	%	on cost is	39 1-2	%	on selling price.
66 2-3	%	on cost is	40	%	on selling price.
70	%	on cost is	41	%	on selling price.
75	%	on cost is	42 3-4	%	on selling price.
80	%	on cost is	44 1-2	%	on selling price.
90	%	on cost is	47 1-2	%	on selling price.
100	%	on cost is	50	%	on selling price.

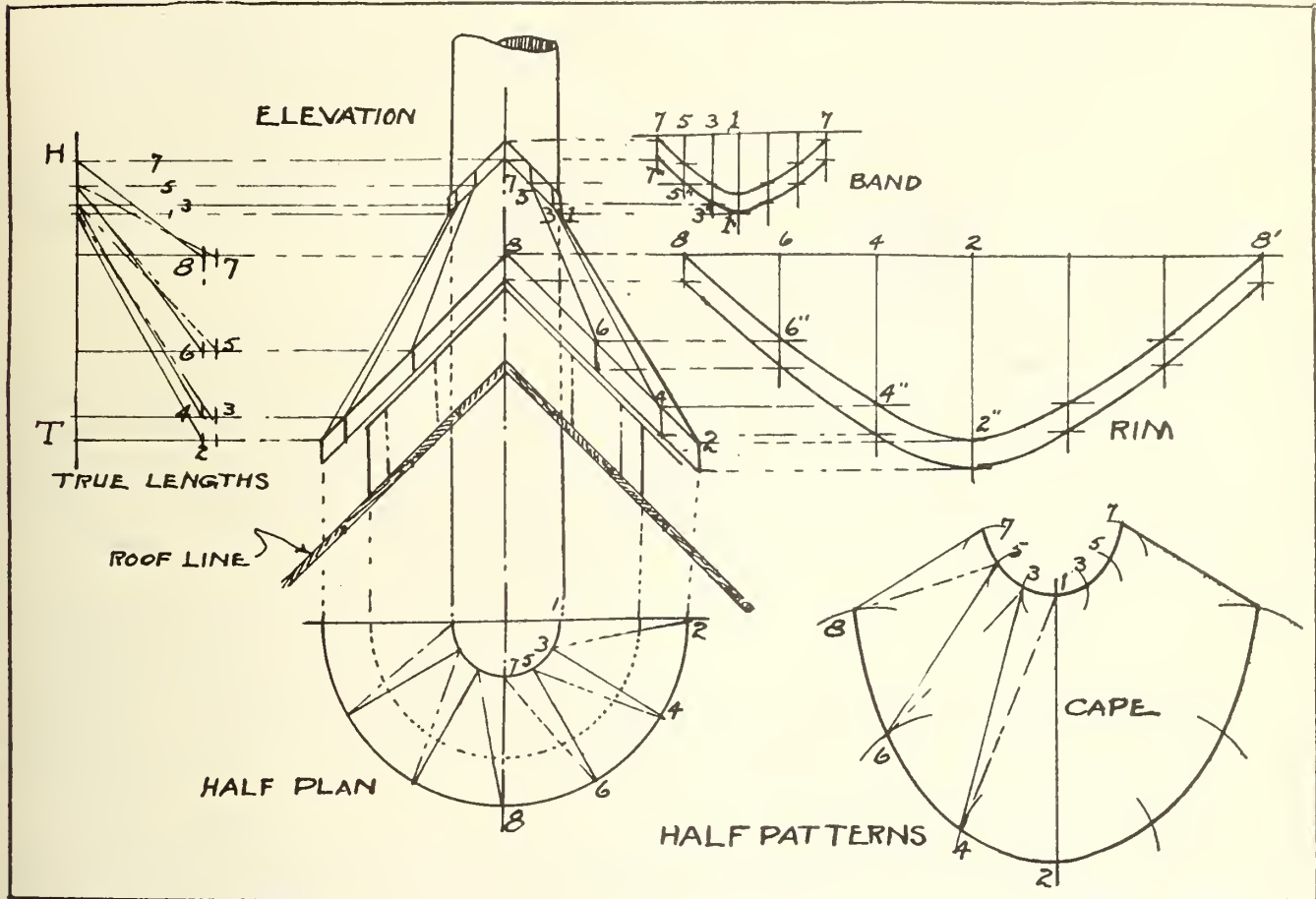
To those who are interested in the relation between percentages of selling price and percentages on cost, the following schedule may also be found helpful, as the equivalents are easy to grasp.

1-3	of selling price is equal to	1-2 of cost.
1-4	of selling price is equal to	1-3 of cost.
1-5	of selling price is equal to	1-4 of cost.
1-6	of selling price is equal to	1-5 of cost.
1-7	of selling price is equal to	1-6 of cost.
1-8	of selling price is equal to	1-7 of cost.
1-9	of selling price is equal to	1-8 of cost.
1-10	of selling price is equal to	1-9 of cost.
2-5	of selling price is equal to	2-3 of cost.
2-7	of selling price is equal to	2-5 of cost.
2-9	of selling price is equal to	2-7 of cost.
3-8	of selling price is equal to	3-5 of cost.
4-9	of selling price is equal to	4-5 of cost.

Pattern for Double Pitched Roof Flange Cape Surrounding Stack as Ventilator on Steep Roof

Makes Working Drawing of Device to Prevent Weather From Getting Into Boiler Room

Written especially for Sanitary Engineer by O. W. KOTHE, Principal, St. Louis Technical Institute, St. Louis, Missouri



WHERE stacks pass through steep roofs, a cape often surrounds the stack as a ventilator and to prevent the weather from getting into the boiler room. It is possible that the cape is cut on a gable as 2-8, but it is not often that the top is cut parallel with it as 1-7, that is unless the stack is quite large and a steep pitch would be met with. But this treatment is interesting, as it shows getting true lengths from various outlines, also developing girth bands along inclined spaces, that are curved in plan.

So first draw the elevation of stack and describe the plan making the distance 1-2 to suit and with this the outlines of elevation can be drawn in. The large semi-circle of plan is divided in any number of equal parts and lines are drawn to the centre, thereby dividing the smaller circle at the same time. Draw lines from one point to the other as 1-2; 2-3; 3-4, etc. From these points

erect lines into elevation and that gives you those lines on the bands bottom and top as 2-4-6-8 and 1-3-5-7. To find the true lengths we draw the line H-T and pick the plan lines 1-2 and 2-3 and set

them off as T-2 and T-3. As all these plan lines are of the same length, we square up lines which gives points 2-4-6-8 and 3-5-7. By drawing these lines to the proper altitudinal height line around point H we have the true lengths.

Now to determine the true girth along the edges and top and bottom of cape, we must first develop the bands and the rim. So pick the girth from plan for the upper band as 1-7 and set it off as 7-7 and then develop the pattern by projecting lines over as shown. In a similar way we developed the rim by picking spaces 2-4-6-8 from plan and setting them as 8-8 ft. and then developing the pattern as shown. Observe spaces 2 in.-4 in.-6 in.-8 in. are for the girth the lower edge of cape and that the spaces 1 in.-3 in.-5 in.-7 in. are for the girth on the top edge of cape. After this develop the cape after the manner of all tapering fittings taken up in past issues.

SAYS TRADE BENEFITS BY "SANITARY ENGINEER"

"I believe anyone connected with the plumbing trade will derive a great deal of benefit from Sanitary Engineer.

"I am a comparatively new subscriber but I have found some very interesting items in the various numbers, particularly in the departments devoted to practical work. The market reports are very helpful also."

(Signed) Chas. W. Mullett,
Bancroft, Ont.

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Merits of Central Heating

IT IS interesting to note that the merits of central heating, particularly in view of the shortage and high cost of fuel, have been sufficiently appreciated by the Federal Government authorities to have a recommendation along that line included in the report of the Federal Advisory Fuel Committee to the House of Commons. The recommendation is as follows:

"Advocate the installation of central heating plants, especially in the smaller towns where the municipalities own and operate steam-driven plants for electric lighting and now waste the exhaust steam from the engines.

"The cheapest grades of bituminous coal could be used in plants of this kind."

Standardizing Plumbing

STANDARDIZATION is a question which is receiving a great deal of attention at the present time. The Department of Commerce in the United States has been actively engaged in studying production and distribution and making recommendations for the simplification of patterns and designs of various articles and much success has attended these efforts. In some cases reductions to the extent of 40 per cent. in certain lines of tools have been made. This activity is extending to Canada. Sanitary Engineer has discovered that a new list is now being prepared by file manufacturers in this country which will eliminate about 150 of the lines of files which are least required.

A Canadian manufacturer of plumbing goods who is working his plant to only about 60 per cent. of capacity has been giving some thought to the subject. He has expressed the opinion to Sanitary Engineer that Canadian manufacturers should get together and eliminate some of their lines and come to an agreement regarding the manufacture of standard lines with a view to developing quantity production. Instead of two firms making one hundred products each, two might better concentrate on fifty lines. The point was made on the basis that many manufacturers have little opportunity to reduce their costs in other directions such as labor, freight, etc., and can, therefore, only increase earnings by the exercise of more rigid economies in production.

Recent developments in industry have been towards simplification and standardization with a view to cutting costs to a minimum. If developed sufficiently it will be of material assistance to the plumbing and heating industry in reducing the labors of stocktaking and facilitate the keeping and locating of stock in the shop.

In Ignorance

IT IS NOT difficult for the man or woman who reads of this wholesale abandonment of homes while seated in the street car or in his cosy home to criticize or to belittle the farmer. He has not the courage or the determination of the older generation, say these superior critics; he expects to make a fortune too quickly, he relies on a single crop and does not work half hard enough they say. There is plenty of this kind of talk in the cities. It would not be so general if the city man would change places with his country brother for a week. Clerks in offices who suffer from brain fag when they total up many rows of figures in a warm office, lawyers who plead exhaustion after the delivery of an oratorical tour de force, and men and women at the dress goods counter in a heated and well ventilated store, would find life many shades more difficult if they had to break the ice at the well at five o'clock on a winter's morning in order to water the beasts, or had to milk the cows, with the thermometer standing forty "below." These are the conditions rural plumbers are trying to improve.

What Kind of Building?

THE great activity in the building industry in Canada would seem to indicate an increasingly large outlet for plumbing and heating equipment. Indications are that this year will be the greatest of building years since the boom days of 1912 and 1913. The total of building in Canada for the first four months of 1922 represents an increase of 60 per cent. over the previous year.

The question arises as to how much of this planned building will actually be done. Authorities on the subject point to the increasing costs on building materials and give it as an indication that builders will now go ahead with construction, confident that no lower costs will prevail for a while at least. The average cost of labor is expected to continue approximately on the same basis as labor costs in 1922, but materials have increased.

Analyzing the records for the month of April, residential building accounted for 38 per cent. of the total, business building was 30 per cent., industrial building 4 per cent., public works and utilities 28 per cent. A further analysis of the building done in four months which would be of particular interest to sanitary and heating engineers indicates the following: Ontario; 18 apartments, 18 churches, 3 hospitals, 54 factories, 22 public garages, 15 hotels and clubs, 27 office buildings, 21 public buildings, 2,988 residences, 33 schools, 125 stores, 22 warehouses.

Quebec; 9 apartments, 14 churches, 24 factories, 10 garages, 9 hotels and clubs, 7 office buildings, 5 public buildings, 786 residences, 15 schools, 40 stores, 12 warehouses.

West; 2 apartments, 3 churches, 18 factories, 14 garages, 2 hospitals, 7 hotels and clubs, 14 hospitals, 11 public buildings, 454 residences, 18 schools, 66 stores, 2 theatres, 21 warehouses.

These figures are fairly representative of the whole Dominion and give the craft some idea of what type of building is being done.

Briefs

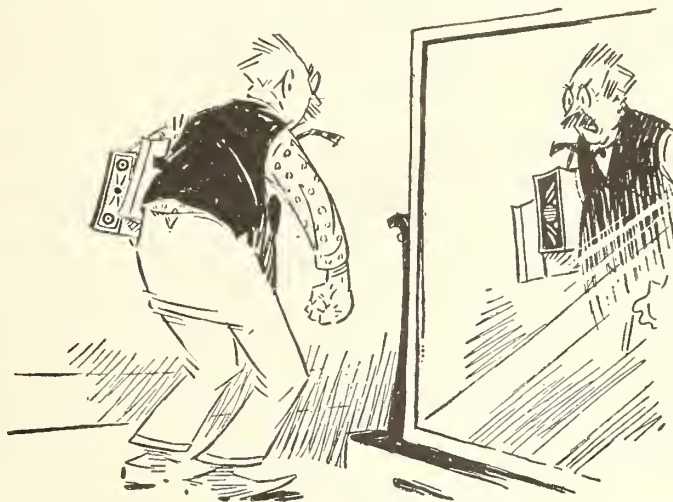
ORILLIA will experiment with central heating. The experience of this winter will prompt many municipalities to examine the possibilities of the system.

MINUTE MESSAGE

Number Eleven

Written for "Sanitary Engineer" by FRANK STOCKDALE

Buying Series



Don't Compete with the Fellow in the Looking Glass

THE merchant who now carries a good brand of merchandise, and who stocks a new brand to keep his competitor from getting it, immediately starts competition with himself—on the inside instead of on the outside where it properly belongs.

He plays a game of "Heads you win—Tails I lose."

He's beaten before he starts!

By purchasing this new brand he multiplies his stocks, confuses his selling and destroys his profits.

On the other hand, should he need the brand to round out a salable assortment, let him take it on. It will be a wise move. But—

When two brands compete with each other, discard one of them. Give the best a chance to win. Let your competitor have the other—HE MAY NEED IT.

Make competition when you can, meet competition when you must, but do not try to avoid it by housing it within your own store.

THINK IT OVER—APPLY IT IN YOUR BUSINESS

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News Notes From Coast to Coast

Doings in the Plumbing and Heating Industry

BUSINESS CHANGES

Rigaud, Que.—Sequin, frere, plumbers, have dissolved.

Ottawa, Ont.—W. G. Edge, Ltd., hardware and plumbing, have discontinued the hardware branch of their business.

St. Thomas, Ont.—The partnership heretofore existing between the late Albert Edward Hamilton, who died September 20th, 1922, and James E. Stott, carrying on business of plumbing, tin-smithing, steam and gasfitting, at 428 Talbot St., St. Thomas, has been dissolved, and the firm is going to be carried on by James E. Stott, under the firm name of Hamilton and Stott.

MASTER OF ARTS HAS A JOB AS PLUMBER'S ASSISTANT

Ottawa.—Departmental patronage in filling positions exempted from the operation of the Civil Service Act was described by C. Grant MacNeil, acting for the Great War Veterans' Association and Dominion Veterans' Alliance, before the House Committee on the Civil Service Act.

Mr. MacNeil recommended that departments obtain their men for exempted positions through the government employment service, which would give the preference to ex-service men.

"In Toronto the labor market is good," remarked James Malcolm, who was in the chair. "No man need go without a job in Canada to-day."

Mr. Chevrier said he knew of a master of arts from Toronto University who took a job as plumber's apprentice a few days ago.

PLUMBERS, NOT BURGLARS

A couple of plumbers caused quite a stir at the Canada Wire plant, Leaside, Ont. While working on a basin which is dangerously near the vault, one of them touched those highly charged wires which send in the burglar alarm. They didn't hear any sound, but not so, however, with the protection company at the other end. A police van, with numerous detectives was on the premises in short order.

PLUMBER HAS RADIO SET IN WATCH CASE

A wireless set with a receiving radius of five miles built into a watch case is the novel possession of Mr. Henry Gallie, a plumber of Vancouver, B. C., who has been an enthusiastic radio fan for many months. The first set which he built was large enough to cover the kitchen table, and the last so small that it can conveniently be carried in his vest

pocket. In between these two efforts this indefatigable radion has built four sets, each smaller than the one preceding it.

Having perfected this miniature set, Mr. Gallie's ambition is now to devise a portable aerial which will allow "listening in" while the set is being carried in the vest pocket.

COBALT TO HAVE SANITARY INSPECTOR AND TAX COLLECTOR

Cobalt, Ont.—Urged into activity by some pointed criticism of the condition of the town by Dr. E. W. Mitchell, local M. H. O., the town council will appoint a sanitary inspector and tax collector, the duties of the officers to be combined. Dr. Mitchell, at the first meeting the Board of Health has held since December, 1921, declared that some parts of Cobalt were in a "scandalous" condition, and that he supposed the town never was as dirty as it was to-day.

The chief of police nominally has been sanitary inspector, but the medical officer had no faith in this combination of work, believing the chief had enough police duties to occupy his time. The doctor also recommended the installation of a chlorination plant at a cost of \$1,800, which the council passed on to the Public Utilities Commission.

DISCUSS DRAIN CONNECTIONS AND APPOINT PLUMBING INSPECTOR

Dundas, Ont.—The installation of private drain connections into homes whose owners have signified a willingness to pay the entire amount of the cost, including labor, material, inspection and 5 per cent. of the cost of engineering on completion of the work, will be proceeded with at once. Any other citizens desirous of having the work done under the same terms are requested to submit their applications without delay to the office of the town clerk.

At first it was the idea to get the work done and arrange payments so that they could be made along with the main work. Urging of citizens to adopt the plan failed to bring the desired results so that to follow it now will mean the adding of considerable expense.

At the meeting of the sewer committee when this matter was discussed, James Wright, waterworks commissioner, was appointed inspector of the construction of sewers, private drain connections and plumbing.

Makes Plea for More Public Lavatories

The following editorial appeared in Montreal Gazette:

"A matter in which Montreal lags far behind most other large centres of population is in the provision and maintenance of public lavatories at conveniently located points throughout the city. The necessity of such facilities is so obvious as to require no argument, yet the city in the past has allowed this important public service to devolve upon such incidental provision as is made by hotels, stores, depots, office buildings and other public or semi-private enterprises. The subject is not one which lends itself to discussion in detail, but where the comfort and health of men, women and children are concerned, reticence may be carried too far and a crying need neglected on the plea that there is no urgent demand being made for its amelioration. There is no occasion for dealing with this question of elementary human conveniences with the frankness with which it is treated in European cities, but on the other hand there is no excuse for ignoring the palpable facts. An adequate number of public lavatories could be constructed without making any inordinate demands upon the city treasury, and the expenditure would be fully as justifiable as many of the services or improvements which are undertaken in the ordinary course of the year's work. The requirements to be kept in view are simple—inconspicuous location, easy access, economical construction and equipment, and, after their completion, scrupulous cleanliness in operation. A start should be made this year in the provision of one or two, with others added at suitable centres as finances warrant and the need becomes apparent."

PLUMBER BURNED

Montreal.—Attempting to extinguish a fire which broke out in a pile of oakum in his plumber's shop, J. A. Laroche, 44 years of age, 99 Garnier Street, was slightly burned about both hands. In some way the material caught fire and it was while Laroche was endeavoring to pull the burning oakum apart that he was burned.

MOVES TO NEW PREMISES

Peterboro, Ont.—Geo. A. Brenton, plumber, has moved from 99 Hunter St. to his own building at 440 Water St., after fifteen years at the old address.

Western Ontario News

A. E. Pollock, Essex, Ont., was awarded contract by council for all water services to be installed during the year.

James R. Linton, Essex, Ont., wants prices on heating, plumbing and electrical work for new \$4,000 bungalow.

Noble & Rich, London, Ont., have been awarded contract for heating and plumbing for new \$9,000 residence for Bert Weir.

Charles Kingston, Port Colborne, Ont., wants prices on heating, plumbing and electrical equipment for new bungalow for which plans are being prepared.

Wm. Mc Clure, Base Line, Streetsville, Ont., is preparing plans for new \$5,000 residence and wants prices on heating and plumbing.

Alex. Milne, London, Ont., has been awarded contract for heating and plumbing for new \$50,000 addition to Knox Presbyterian Church.

Wesley Ham, Fergus, Ont., is preparing plans for two new residences to cost \$7,000.

John Lawton, Aylmer, Ont., is preparing plans for new \$4,000 dwelling and wants prices on heating, plumbing and electrical equipment.

Wm. Culver, Russell St., Leamington, Ont., wants prices on heating, plumbing and electrical work for new \$6,000 dwelling.

Hyatt Bros., 288 Egerton St., London, Ont., want prices on hot air heating, plumbing and electrical work for three new dwellings costing \$20,000.

Watt and Blackwell, Bank of Toronto, London, Ont., will call for tenders about June 1 for new \$450,000 hospital for Sisters of St. Joseph, at Kitchener, Ont. Prices wanted on plumbing, heating and electrical equipment.

Plans for a new six-roomed school at Hanover, Ont., are being prepared by Architect W. G. Murray, Dominion Savings Building, London, Ont., and prices will be wanted shortly on all heating and plumbing equipment.

Plans are being prepared for new nurses' home at London, Ont., to cost \$150,000. Watt & Blackwell, Bank of Toronto, will call for tenders about May 21. Steam heating, plumbing and electrical equipment will be purchased.

Plans are being prepared by Watt & Blackwell, Bank of Toronto, London, Ont., for new Parish Hall for the Cronyn Memorial Church. Tenders will be called about June 1 and prices are wanted on heating, plumbing and electrical equipment.

TAX AND TARIFF CHANGES OF INTEREST TO PLUMBERS

THE Budget brought down by the Minister of Finance contains a number of interesting changes affecting the plumbing and heating industry, but as the official details were lacking at time of going to press Sanitary Engineer will postpone a thorough dealing with the subject until the next issue.

One of the most important provisions has been the decision to collect a sales tax of 6% at source of manufacture or import rather than having the sales tax collected in two separate stages as in the past. This form of taxation represents an increase of 1½%. The fact that this altered tax is not effective until August 1 will eliminate the danger of misunderstandings which would undoubtedly have followed its immediate application.

Of interest to the trade will be the provisions to exempt small manufacturers, which will probably make it unnecessary for tinsmiths to take out licenses as manufacturers as has been the case in the past. The decision to encourage the production of copper in this country may also have some interesting results. Watch for complete details in next issue.

WOULD BE LOST WITHOUT "SANITARY ENGINEER"

"I appreciate Sanitary Engineer very much and would be lost without it. After receiving each issue we read:

"First, the market conditions; second, news notes from coast to coast; third, Minute Message by Frank Stockdale; fourth, Patterns in Sheet Metal Work; fifth, editorials.

"We read most of the articles and note most of the advertisements."

*(Signed) C. E. Meiklejohn,
Warkworth, Ont.*

PLUMBING BY-LAW BEING OPPOSED

St. Boniface, Man.—If the new St. Boniface plumbing by-law prepared by master plumbers of St. Boniface and Winnipeg does not pass through council at its next regular meeting, St. Boniface will be the only district in Greater Winnipeg that will not have the standardized plumbing system. The by-law, which has received a partial second reading, will be most likely completed at the next session of the council.

All other districts surrounding Winnipeg and including Winnipeg have the one system of plumbing which came into effect when the Greater Winnipeg water district was formed. This means that plumbers all can carry the one stock. Opposition to this method has been voiced by some St. Boniface plumbers who wish to retain their present method of plumbing which part of the council declare to be obsolete.

PLUMBERS GIVEN INCREASE

Montreal.—Plumbers in the National and Catholic Union get an increase of five cents an hour following negotiations just concluded between the Master Plumbers' Association of Montreal and vicinity and the National and Catholic Union of Plumbers. The contract is being signed and the agreement is made for two years, to May 1, 1925. Four hundred men are involved, but it is understood that the rate agreed upon with the union will be that paid by the Master Plumbers' Association to all plumbers employed by them in Montreal and district.

Rates under the new agreement are 75 cents an hour for plumbers in Grade A, 70 cents for Grade B and 65 cents for Grade C. A special clause providing for abnormal times is included in the contract. This specifies that in case of outbreak of war or a prolonged economic trouble one or both of the parties signatory to the contract may give 30 days' notice of the cancellation of the agreement.

Hours of labor under the contract are: May 1 to November 1, a week of 49 hours to 50 hours; November 1 to May 1, a week of 44 hours to 45 hours. Overtime will be paid for at the rate of time and a half, with double time after midnight and for Sunday labor. The usual holidays, including Labor Day, Christmas Day, New Year's Day, and religious holidays including Conception Day and Ascension Day will be observed.

The committee representing the Master Plumbers' Association in the negotiations included George Delaney, M. Walsh, M. Latourelle, M. Charette, while those representing the union were R. Binette, L. Vachon, R. Lajoie, A. Dubois and A. Durand.

Selling the Farmer City Conveniences

One of the Many Reasons Why Farming Districts Are Being Depopulated is That City Conveniences Are Not Installed in Farm Houses—Sanitary Engineers Can Cultivate This Almost Unlimited Field for New Business

By EDWIN NEWSOME, Contributing Editor Sanitary Engineer and Lecturer on Rural Sanitation for Department of Agriculture, Ontario

HOW many farmers are there, do you think, who own an auto, have a couple of thousand dollars in the bank and wash in a tin dish?

What would you say, reader, if I told you that in Ontario alone, out of 175,000 farmers, nearly 65,000 own automobiles and have no plumbing and heating systems in their homes?

Of course we all know that it is about as hard to get a farmer to admit that he has any money as it would be to convince me that all I write is not as true as gospel. But anyway the fact that less than 5 per cent. of those owning cars can boast of a modern bathroom and furnace in their homes proves that there is plenty of scope for more farm bathrooms.

Once Detested Auto

If an old gas bus of the vintage of 1907 or so was to whizz by you, the chances are you would turn around and exclaim, "Whow, whow—what a sight!" and you would wonder if the clock had gone back a century. Or else you would nudge someone and exclaim, "Some boat, by Jove."

Yet the old cars that ambled around in the days of 1903 had a place in the world of automobiles that the highest priced Rolls-Royce or Super Six can't crowd into now. The gas wagon that came into existence when there were only two or three to a town, were a centre of admiration. The man who owned it was a greater man than the chap after whose grandfather the main street was named, and almost on a par with the deacon who tapped the corner stone of the new church with a silver trowel.

First Licensed in Ontario

Automobiles were first licensed in Ontario back in the year 1903. In that year

the roll of "horse scarers" contained the names of 220 guilty parties. The horse, in 1903, that didn't put its hind legs over the dashboard in utter disgust at the approach of one of those "usurpers of the highway" wasn't worth wasting oats or pasture on. The average farmer cursed and cursed like Sam Hill at those "ding busted tin wagons."

But what a change has taken place since those days! We now find that as automobile owners farmers head the list; in fact, nearly one out of every three in Ontario is owned by a farmer. In 1915, there were 78,861 car licenses issued by the Ontario Government, and 23,409 were granted to farmers, not including 4,929 trucks, that was equal to one out of every three.

In 1918, out of a total 101,845 licenses issued, 37,758 were issued to farmers and drovers.

In 1919, 127,860 autos were licensed, and in 1920, 155,500 passenger cars and 16,200 trucks with approximately the same ratio as afore mentioned, issued to farmers.

But in 1921, the figures take a big jump. Out of 181,978 passenger cars, 64,045 were licensed by farmers; also trucks, 1859; motorcycles, 428.

Don't these figures suggest a change of heart on the part of a farmer? They certainly do. They also suggest that if farmers have money to buy autos, they can afford to pay for the installing of modern bathroom fixtures and up-to-date kitchen sinks, with hot and cold water on tap 24 hours a day.

Small Per Cent. Own Bathrooms

In the year 1915, the Commission of Conservation conducted a survey of 400 farms, and some very interesting data

was secured respecting conditions in many rural homes.

Keeping the young people at home on the farms is one of Canada's most important problems, and one of the chief suggestions made to make farm home life more attractive is that city conveniences be provided.

Of the 400 farmers visited, 53 per cent. had young folk in their families. With this large percentage of young, it was found to be a regrettable fact that only two farmers out of every hundred have bathrooms in their homes. Only 6.2 per cent. have water closets, only 2.5 per cent. had a complete plumbing system, and only 2.2 had electric light.

In those 400 farms only 16.5 per cent. had the water piped to the house, and but 7.5 per cent. had furnaces in the homes.

These conditions are entirely within the control of the farmers themselves, 7.5 per cent. had furnaces in the homes farms averaging 126.5 acres each.

Figures Worth Considering

Just imagine, reader, the great and golden opportunities there are in rural districts for the sanitary and heating industry. Out of 400 average sized farms, only 10 contains plumbing, and 20 of these 400 owned autos. And, further, we are told that 31.5 per cent. of these four hundred farmers had either auto or horse and buggy for the young people.

Much has been said and written of late to interest farmers in the automobile. Manufacturers see that the most glowing pictures are painted in the mind's eye of the pleasures, yea, and profits to be gained by owning a car. But what have manufacturers of plumbing and heating goods done? I do not wish to cast any

(Continued on page 46)

Can You Use Some Booklets on This Subject?

SANITARY ENGINEER has a limited supply of booklets in convenient size setting forth the matter contained in this article. It will explain to your prospects the need for sanitation in rural districts and the plan of the Ontario Government for assisting farmers to pay the expense of such installations.

You will have to hurry to get your order in for some of these booklets as the supply is limited. Write the Editor, Sanitary Engineer, 143 University Ave., Toronto.

Market Conditions and Tendencies

Price Trend on Sanitary and Heating Supplies

Markets at a Glance

CHANGES in price have been of a moderate nature in the lines connected with the sanitary engineering and heating field for the week. Changes have occurred in a few lines, however, which, though not of large proportions, are nevertheless important. These changes are not confined to advances in price, but cover adjustments in both directions. Closet combinations are slightly affected by higher quotations on vitreous china combinations, which are now \$30.75 instead of \$29.00 as formerly, and those with cast iron enameled tanks are now \$29.00 instead of \$28.75, which was the old price. Tanks, however, have taken the opposite price direction, oak wood tanks are now \$11.20 instead of \$13.20 and oak

vitro or pussyfoot tanks are also quoted at \$11.20 instead of \$13.45.

Higher prices are now being quoted on malleable fittings, the discount being 62½ per cent., whereas it was 65 per cent. formerly. Plugs and unions have also undergone a revision and are quoted at 2½ per cent. higher than formerly. Following the advance in sheet tin at primary sources, quotations on boiler tin and tinned sheets for milk cans have been advanced in price about 10 per cent.

Reductions have again occurred in gasoline and coal oil, 2c per gallon being clipped from the price of both lines, copper wire is now being quoted at \$1.00 per cwt. lower than former levels.

Montreal Markets

MONTREAL, May 13.—Few new prices are noted this week in the local markets, quotations on lines of interest to the sanitary engineering industry remaining fairly well at previously-established levels. As has been the case for the past two or three weeks the ingot metal market and the sheet market show an unsettled condition, following the rapid advance of the previous month. There has been an advance on the local sheet market of approximately fifty cents, this advance being purely local. It will be recalled that some time ago when distributors in other sections of the country advanced their prices, Montreal firms remained at the old levels but have since been forced upwards by the continuance of high levels in primary markets.

The late spring has had a depressing effect upon trading, delaying the season for the building trade by at least a month, which effect has been reflected in plumbing and allied markets.

An advance of five per cent. in the price of stoves has been announced and a reduction of five per cent. in the discounts on range boilers. Single reeled machinery steel has advanced slightly and there are indications of higher prices on heavy sheet products. Following recently established higher prices on asbestos, asbestos sheathing is now up fifty cents per cwt.

The only weakness noted is in the scrap market where there is a general tendency downward, although as yet few prices have been altered. Rubber shoes and automobile tires are down a little as is light brass, but others are expected to follow shortly.

STOVE PRICES ARE ADVANCED FIVE PER CENT.

Montreal.

Announcement is made this week by some manufacturers of an advance of five per cent. on the quotations on wood and coal burning ranges and heaters. The advance does not touch gas heaters.

GALVANIZED SHEETS ADVANCED FIFTY CENTS

Montreal.

The past two weeks have seen the establishment of slightly higher prices in the local sheet metal market. This step had been taken some weeks ago in some parts of the country but local distribu-

tors held off, hoping to get through without touching higher levels. This did not prove possible and an advance which averaged around fifty cents has been made. There is a considerable range in the quotations of the different distributors as the following table will show:

BLACK SHEETS—			
10 gauge, base	4 75	5 00	
12 gauge	4 85	5 00	
14 gauge	4 85	5 10	
16 gauge	5 05	5 15	
18—20 gauge	5 20	5 25	
22—24 gauge	5 20	5 35	
26 gauge	5 25	5 40	
28 gauge	5 35	5 60	

GALVANIZED SHEETS—			
	Queen's Head	Fleur de Lis	
18-20 gauge	6 90 7 40	6 65 7 15	
22 gauge	7 15 7 65	6 90 7 40	
24 gauge	7 25 7 75	7 00 7 50	
26 gauge	7 50 8 00	7 25 7 75	
28 gauge	7 75 8 25	7 50 8 00	

Other Brands—			
10¾ oz.	7 50	7 75	
28 U. S. gauge	7 20	7 50	
26 U. S. gauge	6 55	7 10	
24-22 gauge	6 60	6 85	
20-18 gauge	6 40	6 50	
16 gauge	6 25	6 35	

Above prices are for ½ ton lots in English iron and 1000 lb. lots in American iron with an extra charge of 25c. for less quantities. Extra for sheets 3 ft. wide, 28 gauge and 10¾ oz., 25c. per 100 lbs.

Further extra for sheets 4 ft. wide according to gauge.

TIN PLATE—		
20 x 28 x 100 lbs. basis.....		15 50
20 x 28 IC, 112s		16 00
20 x 28 IX, 112s		18 00
20 x 28 IXX, 56s		11 00
20 x 28 IXXX, 56s		12 00

TERNE PLATE—		
20 x 28 IC, 112s, 200 lb.		14 50
20 x 28 IC, 112s, 214 lb.		15 00

CANADA PLATE—		
Half bright 52s		5 50
Half bright 60s		5 60
Blued 52s		5 90
Blued 60s		6 00
Welsh, polished, 60s		7 35
Welsh, polished, 52s		7 10
Galvanized, 52s		8 00
Galvanized 60s		8 50

WEAKER TENDENCY IS NOTED IN SCRAP METAL MARKET

Montreal.

There is a weaker tone all through the scrap market this week, although few changes in price have been made as yet. Rubber scraps have been reduced slightly as has light brass and other changes are likely to follow. The feeling that these lower prices are coming has caused buyers to hold off to a certain extent, local trading feeling the effects of this tendency. Average local quotations are as follows:

SCRAP—

Automobile Tires	0 50
Rubber Shoes	0 02½
Yellow brass	0 07½
Red brass	0 10½
Light brass	0 05
Scrap zinc	0 05¼
Lead, heavy	0 05½
Lead, tea	0 04½
Light copper	0 10½
Heavy copper	0 13¼
Wrought iron, R. Rd. No. 1 per gr. ton	12 00
Malleable scrap (ton).....	18 00
Pipe scrap (ton).....	10 50
Heavy melting steel.....	13 00
No. 2 busheling	7 00
Boiler plate	12 00
No. 1 machinery cast.....	24 00

CEMENT TRADING CONTINUES TO SHOW IMPROVEMENT

Montreal.

As in the case of all other building lines, the cement market continues to strengthen with the progress of the spring season, the warm weather having had a decided effect upon trading locally. There is no change in the prices quoted here, the following remaining in effect:

CEMENT—

Car load lots, per bag, F.o.b. steam cars	0 86
Per Bag, delivered	0 94
Less car lots, per bag, F.o.b. yard.....	0 94
Per bag, delivered	1 04
Rebate of 20 cents for empty bags.	

EAVES AND CONDUCTORS ARE IN FIRM MARKET

Montreal.

Seasonable activity in eavestrough and conductors is reported to be gaining in strength as the warm weather sets in. The market is firm with no tendency to move from the levels established some time ago, as follows:

EAVESTROUGH—

O. G. round and half round, per 100 ft. 3 in., \$16.90; 10 in., \$18.70; 12 in., \$22.20; 15 in., \$35.50; 18 in., \$45.00.

O. G. Square bead, per 100 ft.; 8 in., \$15.90; 10 in., \$17.70; 12 in., \$21.20; 15 in., \$34.50; 18 in., \$44.00.

Discount 65 and 5 per cent.

CONDUCTOR PIPE—Round, Plain and Corrugated, per 100 ft.; 2 in., \$18.40; 3 in., \$22.30; 4 in., \$29.60; 5 in., \$48.00; 6 in., \$58.80.

Discount 65 and 5 per cent.

CONDUCTOR ELBOWS—

Plain or corrugated, price per doz. 2 in., \$5.25; 3 in., \$6.00; 4 in., \$10.50; 5 in., \$24.00; 6 in., \$29.00.

Discount 65 and 5 per cent.

RANGE BOILER DISCOUNTS ARE REDUCED FIVE PER CENT.

Montreal.

A reduction of five per cent. in the discounts on range boilers has been announced this week, the standard now being list less 35 per cent. and the extra heavy at list less 25 per cent. Trading is reported slightly better, though quiet

even yet. Prices being quoted locally are as follows:

RANGE BOILERS:—

5 Gallon	\$13.50
12 "	14.00
18 "	15.00
25 "	16.50
30 "	17.50
35 "	20.50
40 "	22.75
52 "	38.00
66 "	60.75
82 "	74.00
100 "	103.00
120 "	117.00
144 "	164.00
168 "	187.00
192 "	210.00

St., less 35 per cent.; Ex. Heavy, 25 per cent.

FIRM MARKET IS ESTABLISHED FOR SOIL PIPE

Montreal.

Trading in soil pipe is reported to be improving this week, following a slight tendency towards weakness evinced of late. Prices set in March are still in force, local quotations being:

SOIL PIPE—

2 and 3 inch	33 1-3%
4 inch	33 1-3%
5 and 6 inch	33 1-3%
8 inch	net

FITTINGS—

2 to 6 inch	45%
8 inch	net

NO CHANGE IN QUOTATIONS ON COMPRESSION GOODS

Montreal.

Compression goods remain at levels quoted in the last issue, there being little indication of any early changes, following the recent revisions in these lines. Trading is reported fairly good in the local market and will naturally be on the up-grade from now on throughout the remainder of the season. Local quotations are as follows:

VALVES AND BIBBS—

Compression work, standard	45%
Fuller work, standard	30%
Quick opening, compression bibbs.....	43%
Bath cocks, quick opening	38%
Bath cocks, compression	40%
Basin cocks, quick opening	46%
Flatway stop and waste cocks, standard	54%
Roundway stop and waste cocks, std....	42%
Brass steam cocks, standard, ¼ in.....	50%
Radiator valves, standard	55/25%
Do., removable discs	55/25%
Globe, angle and check valves, std....	25%
Gate or straightway	25%
Emco globe valves	33%
Emco check valves	33%
Jenkins globe, angle, check and swine check	plus 15%
Jenkins gate or straightway.....	plus 11%
Jenkins iron body, globe and angle.....	plus 10%
Jenkins iron body, gate.....	12%
N. P. "O" and "S" traps	34%

BOILER TUBE MARKET RETAINS VERY FIRM TONE

Montreal.

There is a firm market for boiler tubes locally and although prices remain at the levels which have been in force for some time, it would not be surprising to see a revision in the very near future. Quotations now in force are as follows:

BOILER TUBES—

	Seamless	Lapweld
1 inch	20 00	....
1¼ inch	22 00	....
1½ inch	21 00	....
1¾ inch	24 50	24 00
2 inch	21 50	20 00
2¼ inch	24 50	23 00
2½ inch	29 00	24 50
3 inch	34 00	31 00
3½ inch	39 50	35 50
4 inch	50 00	45 00
Prices, per 100 ft., f.o.b. Montreal.		

ENAMELED WARE TRADING IS SLIGHTLY IMPROVED

Montreal.

Slight improvement is noted in the enameled ware market this week, although even yet it is much lighter than is usually the case at this season of the year. There has been no further change in local quotations which remain as follows:

ENAMELED WARE—

Sinks, flat rim—	1 only	2 only	3 only
16 x 24	\$ 7 50	\$ 7 40	\$ 7 30
18 x 30	8 70	8 60	8 50
20 x 30	9 90	9 80	9 70
Bath tubs, roll rim, 4, 4½, 5 feet, 24 to 30 in. wide			51 40
Bath tubs, 5½ feet,			57 10

Lavatories—

17x19 in. Apron F139 or P4045.....	15 30
18x24 in. Apron F154 or P3845 or P3847	23 60
18x21 in. Apron F169 or P4205.....	17 60
17x19 in. Roll rim. F241 or P4345.....	12 60
Less 30 per cent.	

SEASON IS REPORTED SLOW FOR CLOSET GOODS

Montreal.

Since the minor price adjustments noted in the last issue there have been no further price changes on closet goods in the local market. Trading still remains somewhat behind the mark of former years but is opening up gradually at the following levels:

CLOSET COMBINATIONS—

Low Down Outfits,	each
Closet, standard outfit, oak.....	24 00
Do., post hinge seat	25 00
Do., oak vitro or Pussyfoot.....	24 50
Do., post hinge seat	25 50
Do., mahogany vitro or Pussyfoot, post hinge seat and cover	28 00
Do., vitreous china, oak post hinge seat and cover	29 00
Do., vitreous china, mahogany post hinge seat and cover	30 00
Do., white vitro or Pussyfoot, mahogany post hinge seat and cover	30 00
Do., enamelled iron tank, oak post hinge seat and cover	29 50
Do., enamelled iron tank, mahogany post hinge seat and cover	29 50
Add for ¾" valve on supply pipe.....	1 25
Add for spud	0 60
Add for reverse trap bowl	1 50
Add for syphon jet bowl.....	7 00
Deduct for supply pipe	0 80
Deduct for floor hinge	0 60

CLOSET BOWLS—

Richefeu bowl	\$ 00
Washdown bowl with spud	9 50
Reverse trap bowl with spud.....	9 50
Syphon jet bowl with spud.....	15 00

CLOSET SEATS—

Oak post hinge seat and cover.....	3 85
Oak wood strip seat and cover.....	3 50
Mahogany finish post hinge seat and cover	4 05

CLOSET TANKS—

Low down, oak vitro or Pussyfoot with fittings less seat	12 00
White vitro or Pussyfoot with fittings, flush elbow and supply	16 50
Vitreous china tank with fittings, flush elbow and supply	16 00
Enamelled iron with fittings, flush elbow and supply	16 00

TRADING IS REPORTED GOOD IN METAL LATH MARKET

Montreal.

Metal lath trading is reported firm during the past week, orders placed earlier in the season for May delivery being shipped by local distributors in large quantities. Prices remain at the following levels, established some weeks ago:

METAL LATH—

	per sq. yd.
Painted—	
26 gauge	23c.
24 gauge	28c.
32 gauge	32c.
Galvanized, 10c. per sq. yd. extra.	

PIPE FITTINGS REMAIN FIRM AT RECENT REVISION

Montreal.

Discounts as revised two weeks ago remain in force on the local market for pipe fittings. Trading is reported good at these levels which are as follows:

PIPE FITTINGS—

Cast iron fittings	15%
Plugs, cast iron	15%
Do., solid	15%
Do., countersunk	15%
Bushings, cast	17½%
Do., malleable	17½%
Unions	33 1-3%
Flanged unions	15%
Flanged fittings	27½%
Dart unions, black, ½ to 2 in.	331-3%
Do., ½ in., 2½ in., and larger	23%
Do., galv. add to black	30%
Nipples, ½ to 4", close and short	50%
Do., long	55%
Do., 4½ to 8", close and short	40%
Do., long	45%
Couplings, 4" and under	25%
Do., 4½" and larger	5%

Malleable Fittings—

Piece list effective June 1st, 1922. Discount 65 per cent.

QUIET MARKET FOR RADIATION GOODS AT PRESENT

Montreal.

Prices on radiation goods remain without change for some time past, this market being a little quiet at present. Current quotations on radiation goods are as follows:

RADIATORS AND BOILERS—

Radiator list prices are for 1, 2, 3, 4 and 5 column radiators, per sq. ft.

45 in. to 38 in., \$1; 32 in., \$1.10; 30 in., \$1.15; 26 in., \$1.20; 23 in., \$1.26; 22 in., \$1.30; 20 in., \$1.36; 18 in., \$1.40; 16 in., \$1.50; 14 in., \$1.55; 13 in., \$1.60. Discount 44 per cent for hot water, and 45 per cent. for steam.

Wall radiators—5 ft., \$1.15; 6 ft., \$1.10; 7 ft., \$1.05; 9 ft., \$1.05; 12 ft., \$1.05; Discount 41 per cent.

Boilers—Round t water boilers, sizes from 0 to 10, 52 per cent. off list. Square or sectional hot water or steam boilers, 15 in., 3 per cent. with Ontario Government trimmings, list. Square or sectional water boilers, 19 in. to 36 in., 2 per cent. Square or sectional steam boilers, 19 in. to 26 in., 5 per cent. Ontario Government trimmings, list plus 7 per cent. Square or sectional water or steam boilers, 48 in., list plus 10 per cent. With Ontario Government trimmings, list plus 13 per cent.

Round steam boilers, standard trimmings, 16 per cent. Ontario Government trimmings, 13 per cent.

F.o.b. Montreal, Toronto, Guelph.

FIRM MARKET MAINTAINED IN ASBESTOS GOODS

Montreal.

Asbestos products are in a decidedly firm market locally. The recent advance in sheathings has taken asbestos sheathing up along with the rest, the new price being fifty cents per cwt. over that previously in force. Higher prices on other asbestos goods are still anticipated. Local quotations are as follows:

ASBESTOS PRODUCTS—

	Off list prices
2 ply pipe covering	57½%
3 ply pipe covering	55%
4 ply pipe covering	50%
85 per cent. magnesite	35%
	Per b--
Boiler covering	\$1 50
	Per 100 lbs.
Asbestos sheathing	8 25 9 00

TRADING IS GOOD LOCALLY IN CORRUGATED SHEETS

Montreal.

Trading in the corrugated sheet market continues to improve steadily, spring shipments going out from local distributing points in large quantities these days. While the market is firm there has

for some time, those in force remaining as follows:

CORRUGATED SHEETS—

	Per 100 sq. ft.
No. 28 gauge	7 00
No. 26 gauge	7 50
No. 24 gauge	10 00
No. 22 gauge	12 50
No. 20 gauge	14 00
No. 18 gauge	19 00
Less 10 per cent.	
Lighter than 24 gauge and wider than 27 ins.,	
75 cents per square extra.	

MACHINERY STEEL FIGURES IN SLIGHT ADVANCE

Montreal.

The past week has seen little out of the ordinary in the bar products lines, the only price change being the advance noted in single-reeled machinery steel which is now twenty-five cents higher than previously quoted. There is a firm market with trading fairly good at the following levels:

IRON AND STEEL—

Common bar iron, 100 lbs.	3 95
Refined iron	5 45
Irish finish machinery steel	4 00
Mild steel	3 95
Single reeled machinery steel	5 50
Band steel	3 95
Sleighshoe steel	3 95
Spring steel	5 00
Tire steel	4 15
Harrow tooth steel	3 80
Toe caulk steel	4 85
Mining tool steel, per lb.	0 19
Black Diamond tool and cast steel,	
per lb.	0 19

NOTE.—Refined iron is approximately \$1.50 per cwt. over base, but fluctuates owing to unsettled market.

Band steel in scroll bundles, 50c per 100 lbs. extra.

Iron and steel 3-16 in. and thinner, 50c per 100 lbs. extra.

STEADY IMPROVEMENT IS NOTED IN COTTON WASTE MARKET

Montreal.

Brisk business is reported this week in the cotton waste markets. Opening of navigation is largely responsible for the increase, although there has been a steady increase in trading noticeable for some weeks past. The quotations of the past two months remain in effect as follows:

COTTON WASTES—

	Per lb.
Cream polishing	0 24
White, XXX extra	0 20
White, XX grand	0 18½
White, XLGR	0 17
X Empire	0 15½
X Press	0 14

Colored—

Fancy	0 15½
Lion	0 14
Standard	0 12½
Popular	0 10½
Keen	0 08½

Wool Packing—

Arrow	0 25
Axle	0 21
Anvil	0 17

Dominion Wipers—

White cotton	0 20
Colored cotton	0 13½

HEAVY SHEET PRODUCTS LIKELY TO UNDERGO ADVANCE

Montreal.

Manufacturers of heavy sheet products such as scrapers and wheelbarrows are said to be having difficulty at the present time in keeping up with the orders on hand; in fact, one manufacturer is said to have stated that were he to receive no further orders during the next two months his plant would be in no way affected by this condition. Several reasons are given for this congested state, one being the difficulty of secur-

ing supplies from the American markets and another being the late opening of navigation and the transportation hold-up caused by the floods in the Maritimes which have held up English materials shipped to winter ports on the coast. In the opinion of local distributors, their difficulty in having orders filled at the factory is likely to result in an advance in price of these goods shortly.

INGOT METAL MARKET RETAINS UNSETTLED TONE

Montreal.

The metal market still remains more or less unsettled and there is no particular sign of any marked improvement as yet. The European situation is still a drawback to conditions improving in England and at the moment the outlook is somewhat uncertain. There has, however, been a substantial reaction from the high prices reached a month or two ago and the general level of prices is now more reasonable.

TIN.—This metal continues to fluctuate within narrow limits but there is no sign yet of any particular interest on the part of American buyers. This is the key to the situation and until they come into the market again it is not likely that there will be much advance. The local market is slightly lower at 51 cents per lb.

COPPER.—The New York market is easier in sympathy with London where the most is being made of any bearish factors. Copper has now declined 1½ cents per lb. from the top price and 16 cents is not an unreasonable figure. American mills must soon come into the market again which should have a steadying effect upon prices. The local market is quiet at 20½ cents for casting.

LEAD.—East St. Louis continues to decline and evidently the possibility of foreign lead being imported into the U. S. A. has its effect upon prices. Stocks are still low in the U. S. A. and were it not for the foreign situation the market would, no doubt, have rallied before this. London is slightly lower, chiefly owing to more plentiful offerings. The local market is easier at 8 cents.

SPELTER.—After going as low as 6.75 last week East St. Louis advanced sharply to 7.15 but it is again easier owing to the decline in London. There is evidently considerable buying still to be done for May and June and as stocks are somewhat light a further advance would not be surprising. American spelter has temporarily ceased to be a factor in London where the market is rather easy. The local market is weaker at 9½ cents per lb.

ANTIMONY.—The New York market is slightly easier but locally the situation remains firm owing to scarcity of supplies. There is no change in local quotations of 8 cents for Chinese but the English market is firmer at 9 to 9½ cents per lb.

ALUMINUM.—A quiet tone continues in this market locally with prices remaining at 25 cents per lb.

Toronto Markets

TORONTO, May 13.—The outstanding feature of the market report in sanitary engineering products is the fact that prices have maintained the levels recently noted, with but few exceptions.

Some slight changes have developed, however, which have been more in the nature of an adjustment of some slight irregularities which have occurred in quotations, and other changes have brought the price of the lines affected, to lower levels. The adjustments have been in closet combinations and bowls, the vitreous china and enameled iron tank combinations both being quoted at slightly higher prices. Oak wood and oak vitro tanks have been slightly reduced, being now quoted at \$11.20 each, with bend and supply.

Oil and gasoline have again been reduced in price locally. Royalite grade oil is now quoted at 18c per gallon and motor gasoline at 25c per gallon. A similar situation has developed in quotations on copper wire which have been reduced \$1.00 per cwt. from former levels.

Recent advances have occurred in quotations on most lines of sheet metal in primary sources, the principal change locally, however, has been in some of the grades of tin plate, on which slightly higher prices have been quoted during the week.

A gradual improvement in trade in plumbing and heating is reported from most sources. Some good contracts have been let in various parts of the province since the opening of spring, but there is no doubt the recent inclement weather has had a depressing effect on the building trade.

COTTON WASTE ENJOYING BRISK TRADE

Toronto.

The spring season has opened up satisfactorily in the cotton waste market. There is no further change in the price, recently noted levels being well maintained.

COTTON WASTES—

Cream, polishing	0 24
White, XXX	0 21
XX	0 18
X	0 17
XC	0 15½
XXX extra	0 20
X, grand	0 18½
XLCR	0 17
X, Empire	0 15½
X, press	0 14
Colored, No. 1	0 14½
No. 17	0 14½
No. 1A	0 13½
No. 1B	0 11½
Fancy	0 15½
Lion	0 14
Standard	0 12½
Popular	0 10½
Keen	0 08½

Above lines subject to trade discount for quantity.

ASBESTOS PRODUCTS HOLDING FIRM IN PRICE

Toronto.

Quotations on asbestos products are firm but no changes have taken place for some time. There is a steady movement in practically all lines of these products both for local consumption and for export.

ASBESTOS PRODUCTS—

Pipe Covering—	
Air cell, 4 ply	50 per cent. off list.
Air cell, 3 ply	55 per cent. off list.
Air cell, 2 ply	57½ per cent. off list.
Boiler Covering	\$1.50 — \$2.00 per bag.
Asbestos Sheathing	\$8.25 \$9.00

Magnesia pipe covering

Magnesia pipe covering, small lots, less 35 per cent.

NO CHANGE IN BOILERS AND RADIATORS

Toronto.

Boilers and radiators continue at the revision of March 31st. Building programmes for this season seem to be of such dimensions to warrant the feeling that good sales will be made in these lines during the next few monthss. Quotations on the local market are as follows:

RADIATORS AND BOILERS—

Revised radiator list prices are for 1, 2, 3, 4 and 5-column radiators per square foot.

38 in., \$1; 32 in., \$1.10; 30 in., \$1.15; 28 in., \$1.20; 23 in., \$1.26; 22 in., \$1.30; 20 in., \$1.36; 18 in., \$1.40; 16 in., \$1.50; 14 in., \$1.55; 13 in., \$1.60.

Discount on 2, 3, 4 and 5 column standard sizes, 44 per cent. for water and 45 per cent. for steam.

Discount on 1-column standard size, and 2, 3, and 4-column hospital sizes 36 per cent. for water and 37 per cent. for steam.

Wall radiators—5 ft., \$1.15; 6 ft., \$1.10; 7 ft., \$1.05; 9 ft., \$1.05; 12 ft., \$1.05. Discount 41 per cent.

BOILERS—

Water:

Round 52 per cent. off list. Square 8 per cent. off list.

Steam:

Round, 13 per cent. off list; Square, list plus 7 per cent.

SMOOTH-ON IRON CEMENT ENJOYS BRISK SALE

Toronto.

Smooth-On iron cement has shown considerable activity within the last week on the local market. Average quotations on the popular selling packages are as follows:

English polished, 52 sheets	7 30
English polished, 60 sheets	7 75

SMOOTH-ON IRON CEMENT—

Household size 6 oz. can per doz., \$4.44. 1 lb. cans, each 48½c. 5 lb. cans \$2.25 each.

NO FURTHER PRICE ANNOUNCEMENT ON IRON PIPE

Toronto.

The new prices on iron pipe announced in the May 1st issue of Sanitary Engineer, are now being well maintained on the local market. The abrupt nature of the recent advance caused some variation in quotations but there is no evidence of this condition remaining.

WROUGHT PIPE

Price List No. 59.		April 24th, 1923			
Standard Butt-weld		Pipe S C	per 100 feet.		
Size	Blk.	Steel	Gen. Galv.	Wrot. Blk.	Iron Galv.
1½ in.		6.00	8.00	.....	.....
1¼ in.		4.32	6.30	7.56	9.60
3/8 in.		4.32	6.30	7.56	9.60
1½ in.		5.53	6.97	7.82	9.35
¾ in.		6.79	8.40	9.55	11.27
1 in.		9.69	12.07	13.77	16.32
1¼ in.		13.11	16.33	18.63	22.08
1½ in.		15.68	19.53	22.28	26.40
2 in.		21.09	26.27	29.97	35.52
2½ in.		33.35	41.54	.....	.....
3 in.		43.61	54.32	.....	.....
3½ in.		56.12	69.00	.....	.....
4 in.		66.49	81.75	.....	.....

Standard Lapweld Pipe S. C. per 100 ft.

Size	Blk.	Steel	Gen. Galv.	Wrot. Blk.	Iron Galv.
2 in.		24.42	29.60	33.30	38.85
2½ in.		36.27	44.46	50.31	59.09
3 in.		47.43	58.14	65.79	77.27
3½ in.		57.04	69.92	79.12	92.92
4 in.		67.58	82.34	93.74	110.09
4½ in.		78.74	96.52	1.14	1.33
5 in.		91.76	112.48	1.33	1.55
		foot	foot		
6 in.		1.19	1.45	1.73	2.02
7 in.		1.55	1.90	2.21	2.62
8 in.		1.63	2.00	2.33	2.75
8 in.		1.87	2.59	2.68	3.17
9 in.		2.31	2.83	.....	.....
10 in.		2.14	2.62	3.04	3.58
10 in.		2.76	3.38	3.91	4.61

MARKET IN RANGE BOILER STANDS IS QUIET

Toronto.

Little action is reported in the market on range boiler stands. Sales have been normal at the following list:

BOILER STANDS—

Each—5 gal. \$1.50; 12 gal. \$1.50; 18 gal. \$1.50; 25 gal. \$1.50; 30 gal. \$1.50; 35 gal. \$1.65; 40 gal. \$1.90; 52 gal. \$2.10 66 gal. \$2.35; 82 gal. \$2.50; 100 gal. \$3.80; 120 gal. \$4.00; 144 gal. \$4.00; 168 gal. \$4.00; 192 gal. \$4.00; Adjustable Stands 12 to 14 inch 60c.

RANGE BOILERS ARE FIRM AND UNCHANGED

Toronto.

There is no change in the price of galvanized range boilers on the local market. This line recently took on slightly higher prices which are still in effect and are being well maintained.

RANGE BOILERS—

	St'nd'rd	Ex. He'vy
5 gallon	8 77	.....
10 to 15 gallon	9 10	.....
18 gallon	9 75	.....
25 gallon	10 70	.....
30 gallon	11 35	13 13
35 gallon	13 30	15 38
40 gallon	14 80	17 06
52 gallon	24 70	28 50
66 gallon	39 50	45 56
82 gallon	48 10	55 50
100 gallon	68 95	77 25
120 gallon	76 05	87 75
144 gallon .....	.....	122 50
168 gallon .....	.....	140 25
192 gallon .....	.....	157 50

EXTRAS—

For horizontal tapping	1 15
1" Special for gas heater	1 00
Each extra 3" tapping	3 00
Each extra 2" tapping	1 75

CORRUGATED SHEETS RETAIN THE FIRM TONE

Toronto.

While the sale of corrugated sheets cannot be described as particularly

heavy, there is a satisfactory movement of the line reported in most cases. The higher prices of galvanized iron in U. S. markets has not had any effect on this product locally and dealers are not looking for any immediate change.

CORRUGATED SHEETS—	Per 100 sq. ft.
No. 28 gauge	7 00
No. 26 gauge	7 50
No. 24 gauge	10 00
No. 22 gauge	12 50
No. 20 gauge	14 00
No. 18 gauge	19 00
Less 10 per cent.	
Lighter than 24 gauge and wider than 27 ins.,	
75 cents per square extra.	

SOIL PIPE AND FITTINGS REMAIN UNCHANGED

Toronto.

There has been no change in prices on soil pipe locally for some time. A good seasonable sale is in evidence locally with prospects reported bright for future business in this line. Discounts in effect are shown below.

SOIL PIPE AND FITTINGS—	
2 inch	Less 33 1-3%
3 inch	Less 33 1-3%
4 inch	Less 33 1-3%
5 and 6 inch	Less 33 1-3%
8 inch	net
FITTINGS—	
8 inch fittings.....	net.
2 to 6 inch	Less 45 per cent.

CEMENT SALES REACHING BETTER PROPORTIONS

Toronto.

Sales of cement have continued to mount steadily since the weather became favorable to the working of concrete. Prices have remained stationary at the following list:

CEMENT—	
Car lots, per barrel	3 45
Less car lots, per barrel, f.o.b. yard..	4 35
Per barrel, delivered	4 55
Single bags, 1.15 each, 4 bags to barrel.	
Extra charge of \$1.50 per load on less than 24 bag lots.	
Rebate of 20c. each for empty bags.	

ENAMELED WARES HAVING GOOD SALE

Toronto.

Sales of enameled wares have taken on somewhat larger proportions within the last two weeks. This line is also affected by building activity which is getting under way in increasing volume, with very satisfactory results in the market for enameled ware.

ENAMELED WARE—	
Enameled Iron Baths, 3" roll rim, 4 ft.,	
4 ft. 6 in., 5 ft.....	51 40
Do., 5½ ft.	57 10
Lavatories—	
17x10" Apron F139 or P4045	15 30
18x24" Apron F154 or P3845 or P3847	23 60
18x21" Apron F169 or P4205.....	17 60
18x21" Roll Rim, F197, F199 or	
P4656-6	15 40
17x19" Roll Rim, F241 or P4345	12 60
Sinks, Roll Rim, 16x24 in.	18 40
Do., 18 x 30 in.	23 00
Do., 20 x 30 in.	24 70
Sinks, Flat Rim—	
16x24	3 only 2 only 1 only
18x30	\$7 60 \$7 70 \$7 80
20x30	8 50 8 60 8 70
20x30	9 70 9 80 9 90
List less 30 per cent.	

PIPE FITTINGS TAKE HIGHER PRICE LEVELS

Toronto.

Quotations on pipe fittings have undergone a change toward higher levels during the week. Malleable fittings have been changed from a discount of 65 per cent. to 62½ per cent. and plugs,

bushings and unions have all been advanced practically the same amount of a reduction of the discounts.

PIPE FITTINGS—

Cast iron fittings, standard.....	15%
Do., do., extra heavy.....	15%
Plugs cast iron.....	12½%
Do., solid	12½%
Do., countersunk	12½%
Bushings, mail	15%
Bushings, cast	15%
Unions, ¼ in. to 2 in.....	30%
Unions, ½ in., 2½ to 4 in.....	30%
Flanged unions	15%
Flanged fittings	25%
Nipples, blk. and galvd. ¼ to 4 in.,	
close and short	50%
Do., 4½ in. and larger	40%
Do., long ½ in. to 4 in.....	55%
Do., 4½ in. and larger.....	45%
Do., running thread	30%
Couplings, 4 in. and under	25%
Do., 4½ in. and larger	5%

MALLEABLE FITTINGS—

New piece list, adopted June 1, 1922.		
1 in. elbow	0 32	0 53
2 in. elbow	1 05	1 70
1 in. tee	0 43	0 70
3 in. tee	1 45	2 40
1 in. coupling R. & L.....	0 33	0 59
1 in. locknut, R. & L.....	0 15	0 23
Discount, Less 62½ per cent.		

IRON AND STEEL BECOME FIRM IN PRICE

Toronto.

There has been a tendency toward firmness in quotations on some grades of iron and steel locally since May 1st. Bars are firm at \$3.90, bands have reached \$4.40 base in some quarters, and hoops have advanced to \$5.25 and \$5.75 for the two basic gauges.

IRON AND STEEL—

Mild steel bars and small shapes....	3 90
Mild steel bands, 3-16 in. base.....	4 40
Bar iron, base	3 90
Sleigh shoe steel	4 10
Tire steel	3 60
Spring Steel	10 50
Cold drawn steel	5 00
Hoop steel, heavier than 1"x20G.....	5 25
Do., Lighter than 1"x20G.....	5 75
Norway iron	12 50
Toe caulk iron	4 20
Crucible cast steel steel.....	30 00
Mining drill steel	18 50
Cast tool steel, high grade.....	30 00

NO FURTHER CHANGES IN VALVES AND BIBBS

Toronto.

Prices on valves and bibbs have remained unchanged for the week. Reports from primary sources indicate that the undertone of this market is firm but there is no indication of any immediate change in quotations locally.

VALVES AND BIBBS—

Compression work, standard	45%
Fuller work, standard	30%
Quick opening compression bibbs	43%
Bath cocks, compression.....	41%
Jenkins iron body, gate.....	12 and 10%
Bath cocks, quick opening	41%
Basin cocks, quick opening	46%
Flatway stop and waste cocks, std.....	54%
Roundway stop and waste cocks, standard	54%
Brass steam cocks, standard.....	50%
Radiator valves, standard	55/25%
Do., removable discs	55/25%
Globe, a gile and check valves, standard.	25%
Gate or straightway	25%
Emco globe valves, standard.....	23%
Emco check valves	28%
JMT check, angle and globe, plus.....	5%
Model C	net list
Standard	net list

WROUGHT NIPPLES SHOW NO PRICE CHANGES

Toronto.

Quotations on wrought iron nipples have remained unchanged in the last two weeks. The line changed in price simultaneously with the change in price of

iron pipe, and have since been well maintained on a quiet market.

WROUGHT NIPPLES—

Close and short 4 in. and under 45 per cent; 4½ in. and larger, 35 per cent; Long 4 in. and under, 50 per cent; 4½ in. and larger, 40 per cent; running thread, 4 in. and under, 25 per cent; Running thread long nipples, 20 per cent

GALVANIZED SHEETS HOLDING FIRM AND UNCHANGED

Toronto.

Prices on galvanized sheets, while decidedly firm in tone, have remained at the levels shown below. There has been a substantial advance in U. S. markets on this line but there is no movement of a similar nature reported in Canadian trade circles. Sales are good for this season at the following quotations:

GALVANIZED SHEETS—

	Premier and	Apollo
10¾ oz.	6 90	7 40
U. S. 28 base	6 50	6 90
U. S. 26 base	6 30	6 60
22 and 24	6 05	6 45
18 and 20	6 05	6 30
16	5 90	6 15
12 and 14	5 75	6 00
	Queen's Head	
28 gauge, base	7 50	8 00
26	7 35	7 60
24	7 05	7 30
22	6 90	7 15
	Fleur de Lis	
28 gauge base	7 25	7 50
26	6 85	7 10
24	6 55	6 80
22	6 40	6 65
An extra 40c per 100 lbs. is charged for Key stone and Premier brands copper-bearing sheets.		
An extra is now charged on galvanized sheets.		
10¾ oz. and 28 ga., when shipped out in sheets 3 feet wide. The extra charged over prices shown in 20c. per 100 pounds.		
TANK STEEL PLATES—		
¼-in. and heavier, base	3 60	
3-16 in.	3 95	
BLUE ANNEALED SHEETS—		
10 gauge, base	4 50	4 60
12 gauge	4 55	4 65
14 gauge	4 60	4 70
16 gauge	4 65	4 75
BLACK SHEETS—		
18-20 gauge	5 25	5 35
22-24 gauge	5 30	5 40
26 gauge	5 35	5 45
28 gauge	5 50	5 60
A charge of 25c per 100 lbs. is made for less than case lots. An extra 10c. per 100 lbs. is also charged on sheets 26 in. wide.		

CANADA PLATES BECOME FIRMER IN PRICE

Toronto.

Slightly higher prices are being quoted on some grades of Canada plates. The price quoted on ordinary is now \$5.60 instead of \$5.50 as formerly and English polished sheets have also taken slightly higher levels.

PLATES, CANADA—	Per box
Ordinary, 52 sheets.....	5 60
Do., 60 sheets	5 65
Blued and oiled, boxes 52's.....	5 80
Do., boxes, 60's	5 90
English blue 52 sheets.....	5 90
English polished, 52 sheets.....	7 25
English polished, 60 sheets.....	7 75
WELSH CANADA PLATES—	
Cold polished, 18 x 24 60's.....	7 35
Cold polished, 18 x 24 52's.....	7 10
PLATES, COKE TIN—	
IC, 20 x 28, 112 sheets.....	16 00
IX, 20 x 28, 112 sheets.....	16 25
IXX, 20 x 28, 56 sheets	9 80
PLATES, CHARCOAL TIN—	
IX, 20 x 28, 56 sheets.....	8 50
IXX, 20 x 28, 56 sheets	9 90
PLATES, TERNE—	
IC, 14 x 20, 112 sheets	14 50

CONTINUED WEAKNESS EVIDENT IN SCRAP MATERIALS

Toronto.

In sympathy with a similar situation in U. S. markets, there is a decided

weakness noted in the scrap material market. Metals have shown no further declines from those recently noted but demand is light with buyers holding off waiting for still lower prices. Rubber products, however, continue to show further weakness and new lower prices are in effect locally. The following quotations are for car-lot quantities, f. o. b., Toronto.

SCRAP MATERIALS— f.o.b. Toronto

Scrap Iron		
Heavy melting steel	16 00	— 17 00
Scrap pipe	9 00	— 10 00
Steel turnings	12 50	— 13 50
Malleable scrap	14 50	— 15 00
Rails, scrap	13 50	— 14 50
Net tons—		
No. 1 cast	19 00	— 20 00
Stove plate	14 50	— 15 00
Car wheel (std.)	16 00	— 17 00

Scrap Metals		
Heavy copper wire	13 00	— 14 00
Light copper	10 50	— 11 00
No. 1 composition	10 50	— 11 50
Red brass turnings	9 00	— 10 00
Light brass	5 00	— 5 50
Heavy yellow brass	7 00	— 8 00
Heavy lead	5 25	— 5 75
Tea lead	3 25	— 3 75
Scrap zinc	5 00	— 5 75

Scrap Rubber		
Boots and shoes	2 25	— 2 50
High rubber boots	1 75	— 2 00
Auto tires	0 35	— 0 50
Solid tires	0 75	— 1 00
Inner tubes, mixed	2 50	— 3 00
Peelings, mixed	1 00	— 1 25

PLUMBERS BRASS GOODS REMAIN AT APRIL 18 REVISION

Toronto.

The revision in quotations on plumbers brass goods is still in force on this line locally. The list includes, basin, bath and sink taps, traps and supply pipes in nickel-plated brass at prices listed below.

BRASS GOODS—

No. 3825 Compression, complete with tails	3 75
No. 4 Std. Comp. Double Bath. No. 3829 F	4 46
Ditto with China Index, No. 3830F	4 92
Quick Opening—	
Brass handle on top, No. 3850 F	4 90
China handle on top, No. 3850 F	5 52
Brass handle on side, No. 3851F	4 95
(less Jewell's cup)	
China handle on side No. 3852 F	5 45
(less Jewell's cup)	
No. 4 1/2 Fuller, brass handle, No. 3832	6 48
A2395 Mueller type Shower Faucet	9 25
3/4 in. N. P. Brass Supply Pipes, pair	2 20
1/2 in. N. P. Brass Supply Pipes, pair	2 30
1/2 in. Galvanized Iron Nickel Plated Supply Pipes	1 75
1 1/4 or 1 3/8 Overflow and Waste, 19 gauge, N. P. on rough	3 20
1 1/2 T.B.L. Overflow and Waste, 19 gauge, N. P. on the rough	4 15

LAVATORY FITTINGS—

Riley Basin Cocks China Index, per pair	7 00
Riley Jr. Basin Cocks, China Index, per pair	6 00
Adanac Basin Cocks, Brass Handle, No. 3632, per pair	4 68
Adanac Basin Cocks, China Handle, No. 3635, per pair	5 20
Quick Opening Basin Cocks, Brass Hdle. No. 3630, per pair	3 70
Quick Opening Basin Cocks, China Handle, No. 3633, per pair	4 28
Fuller No. 0 Basin Cocks, Brass Handle, No. 3650, per pair	4 10
Fuller No. 0 Basin Cocks, China Handle No. 3651, per pair	5 04
Midget No. 0 Basin Cocks, No. Index, No. 3623 per pair	3 14
Midget No. 0 Basin Cocks, With Index, No. 3623, per pair	3 45
3/8 in. N.P. Brass supplies to wall or floor	2 20
3/8 in. Galvd. supplies N. P.	1 80
1 1/4 in. N.P.S. Traps to floor No Vent 20G No. 4458	3 46
1 1/4 in. N.P.S. Traps to floor with Vent 20G No. 4462	4 53
1 1/4 in. N.P.P. Traps, No Vent 20G No. 4450	2 74
1 1/4 in. N.P.P. Traps No Vent Toronto By-law No. 4450	2 97
1 1/4 in. N.P.S. Traps with Vent Toronto By-law No. 4462	4 98

1 1/4 in. N.P.S. Traps with Vent Toronto By-law No. 4462	6 67
2 in. N.P.S. Traps with Vent Toronto By-law No. 4462	14 00
Patent Overflow basin plugs	0 71
Pop up waste	5 00
Unique waste China Knob	5 50
Unique waste China Index	5 00
1 1/4 in. Deep Seal Trap No Vent	3 75
1 1/2 in. Deep Seal Trap No Vent	6 00
1 1/4 in. Eliptic Trap	6 50
1 1/2 in. Eliptic Trap	9 00
Whirlpool N.P. Traps list prices less	15%
1/2 in. Lever Handle, Stop and Waste solid key, No. 3969	0 83
1/2 in. Lever Handle, Stop and Waste, pin cheek, lose key, No. 4032	1 04
1/2 in. Lever Handle, Stop and Waste, pat. cap, loose key, No. 4044	1 21
1/2 in. Boiler Drain Cocks 3571	0 80

SHEET TIN FIGURES IN PRICE ADVANCE

Toronto.

Following a similar development in U. S. markets, a sharp advance has been registered in some lines of sheet tin. Boiler tin and sheets for milk cans both being affected by the advance. The new quotations on these lines are as follows:

BOILER TIN—

	Small Lots	Case
	Per C. lbs.	Lots
14x60 IXX. 56 sheets per case	12 50	12 00
14x60 IXXX	12 50	12 00
TINNED SHEETS FOR MILK CANS—		
16 1/2 x 41 3/4 18 ga.	9 65	9 15
21 x 41 3/4 18 ga.	9 65	9 15
30 x 72. 20 ga.	14 50	14 00
30 x 45 1/4 2 ga.	10 15	9 65
30 x 50. 22 ga.	10 25	9 75
30 x 54. 22 ga.	10 30	9 80
30 x 78. 22 ga.	10 35	9 85
30 x 72. 22 ga.	15 00	14 50
36 x 84. 22 ga.	15 00	14 50
42 x 84. 22 ga.	15 75	15 25
48 x 96. 22 ga.	16 50	16 00
30 x 50. 24 ga.	10 25	9 75
30 x 54. 24 ga.	10 30	9 80
30 x 58. 24 ga.	10 35	9 85
30 x 72. 24 ga.	15 00	14 50
36 x 84. 24 ga.	15 00	14 50
42 x 84. 24 ga.	15 75	15 25
30 x 72. 26 ga.	15 50	15 00

TERNE PLATES—

	Per box	
20 x 28, I.C., 112 sheets per box	14 25	14 00

SOME MINOR ADJUSTMENTS IN CLOSET COMBINATIONS

Toronto.

Closet combinations with vitreous china tanks are now quoted at \$30.75 instead of \$29.00 as formerly and those with enameled iron tanks at \$29.00 instead of \$28.75 the old price.

The changes in low closet tanks, however, have been toward slightly lower levels, oak wood tanks are now \$11.20

as against \$13.20 formerly and oak vitro is now \$11.20 instead of \$13.45, the old price.

CLOSET COMBINATIONS— Each

Oak, Wood Tank, Oak W. S. Seat and Cover	24 00
Oak Vitro Tank, Oak W.S. Seat and Cover	21 70
Oak Pussyfoot Tank, Oak W.S. Seat and Cover	24 00
Oak Wood Tank, Oak P.H., Seat and Cover	24 50
Oak Vitro Tank, Oak P.H. Seat and Cover	21 50
White Vitro Oak Woodstrip Seat and Cover	24 50
White, Pussyfoot Oak Woodstrip, Seat and Cover	25 50
White Vitro Tank, Mahog., P.H. Seat and Cover	26 50
White Pussyfoot, Mahog., P.H. Seat and Cover	26 50
White Vitro or Pussyfoot, oak, P.H. Seat and Cover	26 00
Mahog. Pussyfoot, Mahogany P.H., Seat and Cover	27 00
Vitreous China Tank, Oak P.H., Seat and Cover	30 75
Enam. Iron Tank, Oak P.H. Seat and Cover	28 75
Vitreous China Tank, Mahog., P.H. Seat and Cover	31 00
Enam. Iron Tank, Mahog., P.H., Seat and Cover	29 00

ADDITIONS OR REDUCTIONS ON ABOVE—

If supplied less bend or offset, deduct	0 50
If supplied with reverse trap bowl, add	1 50
If supplied with BOT Reverse Trap bowl Add.	2 25
If supplied with plain syphon jet bowl Add.	7 00
If supplied with N.P. stock cock on supply Pipe, Add	1 50
If supplied less brass and rubber floor flange and bolts, Deduct	0 60
If supplied less bend or offset, deduct	0 50
If supplied less N. P. supply pipe deduct	0 70

CLOSET BOWLS—

Washdown bowl with spud	10 60
Reverse trap bowl, with spud	12 10
Syphon jet bowl, with spud	17 00
"Richelleu" bowl	10 50

CLOSET TANKS—LOW DOWN—

Oak wood, Tank and inside fittings with bend and supply	11 20
Mahog. Wood Tank, and inside Fittings with bend and supply	15 40
Oak Vitro or Pussyfoot Tank and inside Fittings with bend and supply	11 20
White Vitro or Pussyfoot Tank and Inside Fittings with bend and supply	13 45
White Enam. Tank E-585 or P.9262, or White Vitreous China Belmeade Tank with fittings (as above)	18 00 18 90

CLOSET SEATS—

Oak Rich. Seat and Cover to wall	3 50
Oak Woodstrip Seat and Cover with bolts	3 50
Oak Woodstrip Seat less Cover with bolts	2 90
Oak Post Hinge Seat and Cover	3 85
Mahog. Fin. Post Hinge Seat and Cove	4 75

COAL OIL AND GASOLINE AGAIN GO DOWN

Toronto.

A satisfactory development has occurred in the coal oil and gasoline market locally. Oil is now quoted at 18c. per gallon and "gas" at 25c.

Winnipeg Markets

WINNIPEG, May 13.—Practically all changes recorded in plumbers' and steamfitters' supplies are in an upward direction. This week every market change reported has shown an advance, and among the lines included are wrought iron pipe, cast iron fittings, Jenkins and standard valves, and pop safety valves. There is a revision in discounts on elbows and tees as well as nipples.

HIGHER PRICES IN EFFECT ON JENKINS VALVES

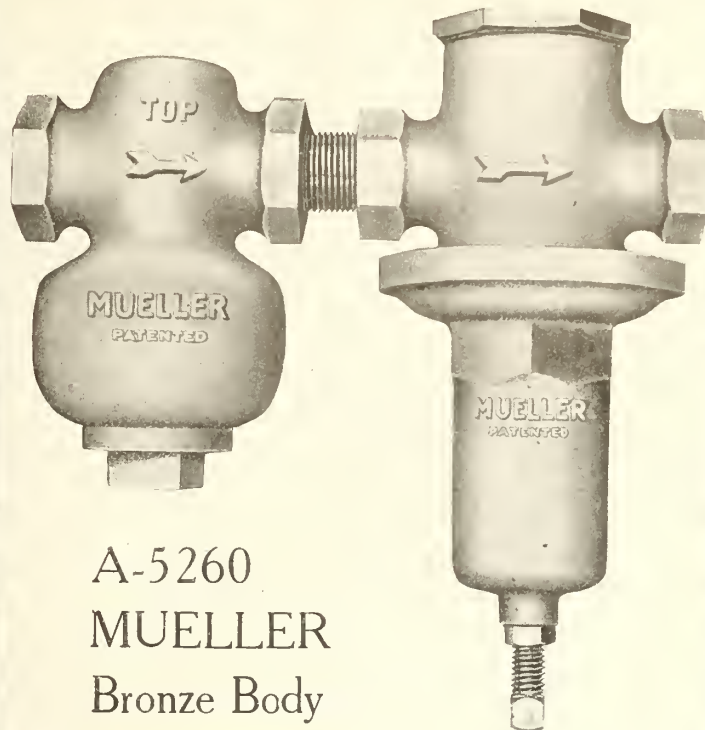
Winnipeg.

Higher prices have been registered on Jenkins iron body valves and revised discount is 15 per cent. advance. Standard valves are quoted at 15 per cent. while check valves with drip cocks are quoted for one half inch \$1.50, three quarter inch \$1.60 and one inch \$1.85.

HIGHER PRICES IN EFFECT ON POP SAFETY VALVES

Winnipeg.

There has been an advance in quotations on pop safety valves and three-quarter inch is quoted at \$6.50, one inch at \$7.30, one and one quarter inch \$8.75, one and one-half inch \$10.50 and two inch \$16.75.



A-5260
MUELLER
Bronze Body
Reducing and Regulating Valve

TO GIVE your work that "Master Touch"—to establish that difference between a common job and a satisfactory installation—install a Pressure Reducing and Regulating Valve on the supply line to every house, and relieve the fixtures of the strain of high pressures.

The MUELLER Valve A-5260, illustrated, is specially designed for domestic service and is unequalled for this purpose. Regardless of variations in the initial pressure, a pre-determined constant delivery pressure is maintained.

Made of Bronze-special composition diaphragm--wearing parts easily renewed—full seat opening—make this valve (sizes $\frac{1}{2}$ " to 2") stand out above the rest.

H. MUELLER MFG. CO., LIMITED, SARNIA, ONT.

Water, Plumbing and Gas Brass Goods and Tools.

American Factory at Decatur Illinois, U. S. A. Branches. New York and San Francisco

Mueller Metals Co., Port Huron, Mich.; Makers of "Red Tip" Brass Rod, Brass and Copper Tubing; Forgings and Castings in Brass, Bronze and Aluminum; also Screw Machined Products.

HIGHER QUOTATIONS IN EFFECT ON IRON PIPE

Winnipeg.

Following the strong tone of primary markets quotations on wrought iron pipe have been moved to higher levels. New prices are shown below.

WROUGHT IRON PIPE—

Size 1/8 per 100 feet	7 20
Size 1/4 per 100 feet	5 10
Size 3/8 per 100 feet	5 25
Size 1/2	6 80
Size 3/4	8 30
Size 1	11 90
Size 1 1/4	16 10
Size 1 1/2	19 25
Size 2	25 90
Size 2 1/2	40 90
Size 3	53 50
Size 3 1/2	68 80
Size 4	81 50
Size 4 1/2	96 50
Size 5	112 50
Size 6	146 00
Size 7	210 00
Size 8	225 00
Size 9	314 00
Size 10	291 00

GALVANIZED—Per 100 feet—

Size 1/4 \$9.75; 1/4 \$7.50; 3/8 \$7.65; 1/2 \$8.50;	
3/4 \$10.25; 1 \$14.75; 1 1/4 \$19.95; 1 1/2 \$23.85; 2	
\$32.10; 2 1/2 \$50.75; 3 \$66.40; 3 1/2 \$84.30; 4	
\$99.85; 4 1/2 \$117.80; 5 \$137.35; 6 \$178.00.	

GENUINE WROUGHT IRON GALVANIZED—

Per 100 feet—Size 1 1/4 \$29.95; 1 1/2 \$35.80;	
2 \$48.15.	

CAST IRON FITTINGS AT HIGHER LEVELS

Winnipeg.

Higher prices are in effect on cast iron fittings. With the cold weather business has not opened up to any degree as yet but it is expected it will improve as the season progresses. Discounts are quoted as follows:

CAST IRON FITTINGS—

Reducers	10%
Bushings	15%
Plugs	10%
Flange Unions, Standard	5%
Companion flanges	15%
Floor flanges	20%
Branch tees	5%
Elbows, tees, etc.	5%
Drainage fittings	25%

NIPPLE QUOTATIONS CHANGED TO HIGHER LEVELS

Winnipeg.

Another reflection of a firm trend noted in the iron pipe market is shown in new quotations on nipples. New quotations are five per cent. higher than formerly in effect, the discounts are as per list below.

NIPPLES—Wrought—

Close and short, 4 inch and under, less 40%.	
Close and short, 4 1/2 inch and larger, 30%.	
Long 4 inch and under 45%.	
4 1/2 inch and larger, 35 per cent.	

REVISED DISCOUNTS ON ELBOWS AND TEES

Winnipeg.

Union elbows and tees are quoted at higher levels and the new discount is less 50 per cent. Boiler elbows and couplings are also quoted at the same discount. Dart unions from one-quarter to two inch are quoted at list price less 27 1/2 per cent, with one-eighth and two and a half inch to four inch at less 10 and 10 per cent. Jefferson unions are quoted at 15 per cent., while malleable railing fittings are quoted at 35 per cent.

SELLING THE FARMER

(Continued from page 38)

reflection upon our travellers and salesmen, but I never yet met one who had the enthusiasm in them which they should for the goods they sell; at least, not within miles, as it were, to the amount of enthusiasm to be found and displayed by the average automobile salesman. Yet, as a matter of fact, the automobile business is as a mere flea bite, taken from every angle, as compared with the all-round usefulness of a complete sanitary and heating equipment in a home, whether it be a farm, rural or city home.

Very little is heard by the farmer and his wife about the value of such household conveniences as bath-tubs, laundry tubs, kitchen sinks, water closets, and hot and cold water at the taps day and night. Automobiles may carry the farm folk away from the daily solitary grind of farm life for a few hours a week, and no doubt such a change is not altogether an unmixed blessing. But, oh, what a mirage in comparison to a home like unto the one found in the average town or city? Here are a couple of stories, which should burn into the mind of every manufacturer and jobber of sanitary and heating goods, as well as every sanitary and heating contractor.

(Continued in next issue)

SPEAKER HOPED DAY WOULD SOON COME

(Continued from page 20)

I charge above the price for the material is my charge for service. I am rendering the customer a splendid service and it is up to me to see that he pays for it. We are taken on our own estimate. In the difference between what I ask the customer to pay and what I paid for it lies the representation of my own value on myself. It is not profit. We are selling our service to humanity. If our estimation of ourselves is so mean that we don't get enough for this service, that is our fault.

"There is not much salesmanship shown in this business. We should develop our imaginations more. Visualize it and see what it will be in the future. This business is just starting to grow and we must keep up to date. We cannot do that by closing our minds with prejudices or set ideas.

"In the question of apprenticeship I note that we are not making many new mechanics and this is going to be felt intensely. Do you think you can interest young men in this country to learn your business and to spend four or five years on a small wage when you set before them an example of yourself in an unclean, untidy condition? Do you think there is any inspiration there for the youth to follow? When you become an employing plumber you should take your overalls and burn them. Put on a shirt and collar, get your shoes shined and

go out and talk business. No man can have the right mental condition or develop a proper character in filth, and the very foundation of your business is opposed to that very condition. Sincerity, sacrifice and truth will solve many of your problems. The day of education is here."

SHORT COURSE LECTURES

(Continued from page 29)

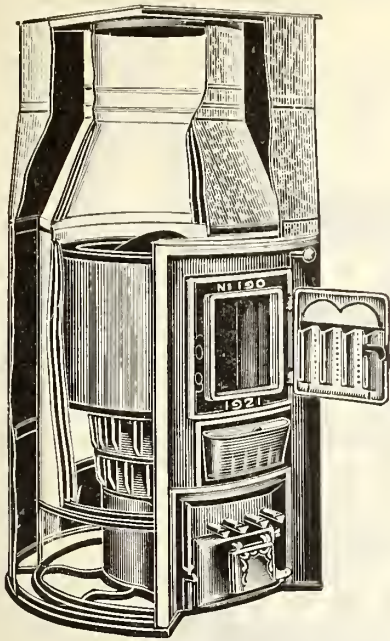
why should farm homes be used in the state they are?"

In concluding his address the speaker made a very astounding assertion. Said he, "And now a word to those farmers who really cannot raise the necessary cash to install these city conveniences I have referred to.

"You have I suppose heard about the Ontario Government establishing savings banks all over the province. What do you think the Government does with this money? They turn some of it, if not all, over to the Ontario Agricultural Development Board. This Board loans money to farmers at 6 per cent, for the purpose of improving their farms and I personally took this question up with the Deputy Minister of Agriculture and the chairman of this development board, and found that provided the rules and regulations of the Agricultural Development Act are complied with money can be borrowed by farmers to fully equip their homes with modern plumbing and all the city conveniences referred to in this lecture shown on the screen. So, ladies and gentlemen, this is the happy climax. And a word to the ladies. Don't let the snow melt before you have got John or whatever name you call your husband by, to promise you city conveniences on the farm and you girls, don't say 'yes' to Tom unless he can assure you of hot and cold water and a modern bathroom in your future home. The job's dead easy for the ladies. It can be done."

Trade Should Follow Up Such Good Work Done

It would be safe to state that this work recently concluded by the agricultural department of Ontario is bound to do good. It ought to be followed up by the whole industry. No other industry has ever had such good work done for it as this, and to neglect or not to follow up such work would be little short of pathetic. Sanitary and heating engineers are not mere business men. By virtue of their very occupation they are custodians of the health of the people. Much more so than medical men and viewing the responsibility of the craft from that angle, such good work done, and done gratis, should be followed up. No other industry would let such splendid work go by without thoroughly following it up and in that way not only increasing the volume of business but performing a duty by seeing to it that every farm home is fitted up with city convenience. A very humanitarian duty.



Banner Pipeless Furnace

Costs One Quarter The Price of a Steam or Hot Water Job

There is a true economy in the installation of a Banner Pipe or Pipeless Furnace.

In farm districts, particularly, this economy is regarded as a very desirable thing.

Farmers everywhere who will not even consider a steam or hot water installation are getting rid of stoves and putting in Banner Pipe or Pipeless Furnaces.

Every stove heated house in your territory is a real, live prospect for these better built furnaces that require no "service" or repairs.

Write to-day for attractive agency proposition.

Banner Pipe Furnace

Banner Pipeless Furnace

Banner Pipeless Wood Furnace

The Galt Stove & Furnace Co.

Limited

Galt

-

Ontario

BEAVER BRAND Porcelain Enamel Ware

—Your Guarantee of Quality—

Beaver Brand Enamelware by its ability to meet the highest demands for service under all conditions, has established itself in the confidence of the public to such an extent that each month witnesses an ever-increasing demand for products of Beaver manufacture.

Amherst Foundry Co., Limited

General Offices and Factory : Amherst, N.S.

Agents :

Ontario :

Monarch Brass Mfg. Co.
71 Brown St., Toronto

Manitoba and Northwest :

E. B. Plewes
197 Princess St., Winnipeg



Few people realize the tremendous selling power of classified advertising or the exceptional opportunity which it offers.

Hundreds of Sanitary Engineers to-day are carrying equipment for which they have no further need, yet many others could use this same equipment to good advantage and would be glad to buy at a fair price, if they but knew of it.

How to get buyer and seller together—that's the question. The answer is—SANITARY ENGINEER classified advertising service. Thousands of Sanitary Engineers throughout the country read the classified advertisements every issue. That's why they produce results surely and quickly.

If you want to buy, sell or exchange equipment.

If you want to sell or exchange your store.

If you want to buy a store.

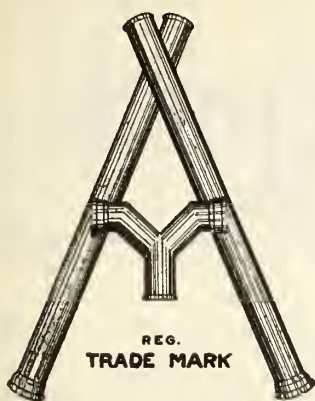
If you are looking for a location.

If you need a competent journeyman.

If you are seeking a position.

In fact if you wish to buy, sell or exchange anything used in a plumbing and steamfitting shop or for any reason desire to quickly get in touch with other Sanitary Engineers, use SANITARY ENGINEER'S classified advertising service. The charge is ridiculously low—\$1.50 for twenty-five words, 5 cents for each additional word.

**Look For The Classified Column
on Page 54**



USE

TESTED Soil Pipe

IT COSTS NO MORE AND YOU KNOW THE JOB IS RIGHT

Manufactured by

FORWELL FOUNDRY, LTD.

KITCHENER, ONT.

Quality



Service

For a Satisfactory Completion Use a Floor and Ceiling Plate

A No. 10-A Narrow Flange Plate like the one illustrated is just the kind that will suit you.

Steel Hinged Plate Flanges $\frac{3}{4}$ " wide.

These plates cover up all places marred by boring, etc.

Highly finished. Especially designed for twin connection "Narrow". Made in $\frac{1}{2}$ in. to 2 ins. inclusive. Has 1 in. flange made in all sizes from $\frac{1}{4}$ to 6 inches inclusive.



Gem No. 4.
Automatic Air Valve.

Made of the best brass obtainable.

Equipped with high grade carbon. Guaranteed.

Catalogue sent on request.

The Beaton & Cadwell Mfg. Co.
New Britain, Conn.

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Commerce, Winnipeg.

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RADIATOR HANGER

YOU'LL USE 'EM YET!



Style R.

Advantage No. 2

Only one anchor bolt per hanger.

For ANY style radiator;
ANY type wall construction. Write for the whole list of their advantages.

Ask your jobber or
write us.

Healy-Ruff Co.
Dept. 23, Minneapolis, Minn.

"Made in Canada"

Are These The Opportunities You're Looking For?

Fan Heating and Ventilating Engineering is the pinnacle of all other forms of heating, and of all branches of steam fitting and sheet metal work. It prepares you for:

1. For Employers it enlarges their business opportunities 100%.
2. Employees it raises to Foremanship of a large shop.
3. Or as Designing Engineer of some large Heating Contractor.
4. As an intelligent Salesman of Heating Appliances.
5. As Chief Engineer with a Heating or Furnace Manufacturing Co.
6. Later a Consulting Engineer to Architects and Building Contractors, etc.

Which of These Are You Working for?

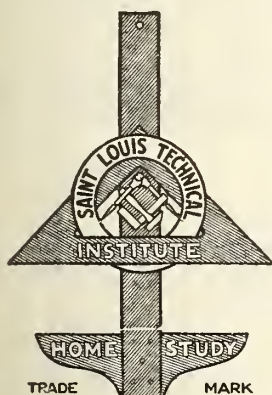
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[] Business Management, for office folks.

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Fittings, Limited, Oshawa.
Canada Metal Co., Ltd., Toronto.

AIR VALVES

Beaton & Caldwell Mfg. Co., New Britain, Conn.
W. H. Cunningham & Hill, Ltd., Toronto.
C. A. Dunham Co., Ltd., Toronto.
Empire Mfg. Co., Ltd., London and Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
J. H. Williams Co., Brooklyn, New York.
United Brassfounders & Engineers, Ltd., Manchester, Eng.
Wallaceburg Brass & Iron Mfg. Co., Ltd., Wallaceburg, Ont.
Wolverine Ltd., Toronto, Ont.

BATHS, STEEL

Steel Trough & Machine Co., Ltd., Tweed, Ont.

ATMOSPHERIC STEAM HEATING

J. E. Farrell, 210 Galley Ave., Toronto, Ont.

BATHROOM FITTINGS

Canada Metal Co., Ltd., Toronto.
Gendron Mfg. Co., Toronto.

BENDING SPRINGS

W. H. Cunningham & Hill, Ltd., Toronto.

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Gurney Foundry Co., Limited, Toronto.
Lord & Burnham Co., Ltd., Toronto.
Spencer Heater Co., Ltd., Toronto, Ont.
Warden King, Ltd., Montreal.

BOILER FEED PUMPS

Smart Turner Machine Co., Ltd., Hamilton, Ont.

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J. E. Farrell, 210 Galley Ave., Toronto, Ont.
C. A. Dunham Co., Ltd., Toronto.
Grant E. Cole Co., 23 River Street, Toronto.

BOILER STANDS

Fittings, Limited, Oshawa.

BOLTS, EYE

J. H. Williams & Co., Brooklyn, N. Y.

BOLTS AND NUTS

Fittings Limited, Oshawa.

BRASS GOODS, VALVES, ETC.

Canadian Brass Co., Ltd., Galt, Ont.
Canada Metal Co., Ltd., Toronto.
C. A. Dunham Co., Ltd., Toronto.
Empire Mfg. Co., Ltd., London and Toronto.
Fittings, Limited, Oshawa.
Galt Brass Co., Limited, Galt.
Kerr Engine Co., Ltd., Walkerville.
James Morrison Brass Mfg. Co., Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
Standard Sanitary Mfg. Co., Ltd., Toronto.
Hamilton.
United Brassfounders and Engineers, Ltd., Manchester, Eng.
Wallaceburg Brass & Iron Mfg. Co., Ltd., Wallaceburg, Ont.
Wolverine Ltd., Toronto, Ont.
W. H. Cunningham & Hill, Ltd., Toronto

BRASS PIPE AND TUBE

Canada Metal Co., Ltd., Toronto.
Empire Mfg. Co., Ltd., London and Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
United Brassfounders & Engineers Ltd., Manchester, Eng.
Wolverine, Ltd., Toronto, Ont.

CASTINGS

Canada Metal Co., Ltd., Toronto.
Fittings, Limited, Oshawa.

CELLAR DRAINERS

Galt Brass Co., Limited, Galt.
Empire Mfg. Co., Ltd., London and Toronto.
James Morrison Brass Mfg. Co., Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
Standard Sanitary Mfg. Co., Ltd., Toronto, and Hamilton.

CIRCULATORS

J. E. Farrell, 210 Galley Ave., Toronto, Ont.
J. H. Williams & Co., Brooklyn, N. Y.
Grant E. Cole Co., 23 River Street, Toronto.

CHAINS

Fittings, Limited, Oshawa.
J. H. Williams & Co., Brooklyn, N. Y.

CLOSETS

Canada Metal Co., Ltd., Toronto.
Empire Mfg. Co., London and Toronto.
Galt Brass Co., Limited, Galt.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
Standard Sanitary Mfg. Co., Ltd., Toronto.
Hamilton.
Steel Trough & Machine Co., Ltd., Tweed, Ont.

CLOSETS—Chemical

Steel Trough & Machine Co., Ltd., Tweed, Ont.

CONDENSATION UNITS

C. A. Dunham Co., Ltd., Toronto, Ont.
J. E. Farrell, 210 Galley Ave., Toronto, Ont.
Smart Turner Machine Co., Ltd., Hamilton, Ont.
The Westco Pumps, Limited, Toronto.
Grant E. Cole Co., 23 River Street, Toronto.

COUNTRY RESIDENCE EQUIPMENTS

Empire Mfg. Co., Ltd., London and Toronto.
H. Mueller Mfg. Co., Sarnia, Ont.
Smart Turner Machine Co., Ltd., Hamilton, Ont.

COUPLINGS

Canada Metal Co., Ltd., Toronto.
Fittings Limited, Oshawa.

DAMPER REGULATORS

C. A. Dunkam Co., Ltd., Toronto.

DRAINAGE FITTINGS

Canada Metal Co., Ltd., Toronto.
Empire Mfg. Co., Ltd., London and Toronto.
Fittings Limited, Oshawa.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
Standard Sanitary Mfg. Co., Ltd., Toronto.
Hamilton.
United Brassfounders & Engineers, Ltd., Manchester, Eng.
Warden King, Ltd., Montreal.

DRAIN PIPE SOLVENT

W. H. Cunningham & Hill, Ltd., Toronto.
Hercules Chemical Co., Inc., New York City.

DRINKING FOUNTAINS

Canada Metal Co., Ltd., Toronto.
Empire Mfg. Co., Ltd., London and Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
Standard Sanitary Mfg. Co., Ltd., Toronto.
Hamilton.

DROP FORGINGS

J. H. Williams & Co., Brooklyn, N.Y.

EJECTORS, STEAM

Kerr Engine Co., Walkerville.
United Brassfounders & Engineers, Ltd., Manchester, Eng.

ENAMELWARE

Amherst Foundry Co., Ltd., Amherst, N.S.
Canada Metal Co., Ltd., Toronto.
Empire Mfg. Co., Ltd., London and Toronto.
Galt Brass Co., Limited, Galt.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
Standard Sanitary Mfg. Co., Ltd., Toronto.
Hamilton.
Port Hope Sanitary Mfg. Co., Ltd., Port Hope.
Standard Sanitary Mfg. Co., Ltd., Toronto.

ELECTRIC PUMPING MACHINERY

Empire Mfg. Co., Ltd., London and Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
Smart Turner Machine Co., Ltd., Hamilton, Ont.

EXPANSION TANKS

Toronto Hardware Mfg. Co., Ltd., Toronto.

FITTINGS

Canada Metal Co., Ltd., Toronto.
Empire Mfg. Co., Ltd., London and Toronto.
Fittings Limited, Oshawa.
James Morrison Brass Mfg. Co., Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
Standard Sanitary Mfg. Co., Ltd., Toronto.
Hamilton.
United Brassfounders & Engineers, Ltd., Manchester, Eng.
Warden King, Ltd., Montreal.

FLUSHOMETERS

Canada Metal Co., Ltd., Toronto.
Empire Mfg. Co., Ltd., London and Toronto.
Galt Brass Co., Ltd., Galt.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
Standard Sanitary Mfg. Co., Ltd., Toronto.
Hamilton.
Wolverine Ltd., Toronto, Ont.

FLOOR AND CEILING PLATES

Beaton & Caldwell Mfg. Co., New Britain, Conn.
W. H. Cunningham & Hill, Ltd., Toronto.
Fittings, Limited, Oshawa.
Wolverine Ltd., Toronto, Ont.
Empire Mfg. Co., London and Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.

FURNACES

Gurney Foundry Co., Limited, Toronto.
Warden King, Ltd., Montreal.
Spencer Heater Co., Ltd., Toronto.
Hamilton Stove & Heater Co., Hamilton.
Burrow, Stewart & Milne, Hamilton.
Hall-Zryd, Hespeler, Ont.
Vulcan Co., London, Ont.

GASOLINE ENGINES

Empire Mfg. Co., Ltd., London and Toronto.

GAS WATER HEATERS

Bastian-Morley, Limited, Toronto.
Empire Mfg. Co., Ltd., London and Toronto.
James Morrison Brass Mfg., Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
Standard Sanitary Mfg. Co., Ltd., Toronto.
Hamilton.
W. H. Cunningham & Hill, Ltd., Toronto.

GALVANIZING

Fittings, Limited, Oshawa.

HEAT GENERATORS

Galt Brass Co., Galt, Ont.
Grant E. Cole Co., 23 River Street, Toronto.

HEATING APPARATUS

C. A. Dunham Co., Ltd., Toronto.
Smart Turner Machine Co., Ltd., Hamilton, Ont.
J. E. Farrell, 210 Galley Ave., Toronto, Ont.

HEATERS

Canada Metal Co., Ltd., Toronto.
Grant E. Cole Co., 23 River Street, Toronto.
Lord & Burnham Co., Ltd., Toronto.
Smart Turner Machine Co., Ltd., Hamilton, Ont.
Warden King, Ltd., Montreal and Toronto.
W. H. Cunningham & Hill, Ltd., Toronto.

HEATING SYSTEMS

C. A. Dunham Co., Ltd., Toronto.
J. E. Farrell, 210 Galley Ave., Toronto, Ont.
Grant E. Cole Co., 23 River Street, Toronto.

HOIST HOOKS

J. H. Williams & Co., Brooklyn, N.Y.

JAPANING

Fittings, Limited, Oshawa.

KEROSENE WATER HEATERS

W. H. Cunningham & Hill, Ltd., Toronto

LAUNDRY TUBS

The Canada Metal Co., Ltd., Toronto.
Standard Sanitary Mfg. Co., Ltd., Toronto.
Hamilton.
Steel Trough & Machine Co., Ltd., Tweed, Ont.

How to Reach Your Prospective Customer as an Invited Guest

11

Suppose you are anxious to secure an order from an important business man; which of the following would you prefer:

(1) To call upon him at his office, while he is busy with Rush Correspondence or engaged on business with other people with whom he has made appointments, and perhaps find after all he is unable to see you, or

(II) To receive a note from him saying he will be glad to see you if you will call on such and such a day?

Naturally you would prefer to receive his note. You would then be sure of receiving his attention; you would be the "invited guest." In the first case you would be more or less an interloper, possibly unwelcome, as you would be taking up time he had intended to use otherwise.

Now the relative difference between the interloper and the invited guest represents exactly the difference between the free publication or circular and the business paper. The former comes unasked, it may by chance be read, more probably it is not. That depends on circumstances. Its most likely destination is the waste paper basket. The trade paper, on the other hand is the invited guest. It is even more, for it has not only been invited, it has been paid to come. Its arrival is looked forward to periodically and the messages it brings are therefore sure to receive attention.

It is partly in order that he may receive these sales messages that the business man pays for the paper. In most cases the advertisements are considered equally as important as the reading matter. It is advisable then for you to see that your messages reach him in this best of all possible ways—as an invited guest.

Now how can you assure yourself that the medium you choose for your advertisement will comply with these conditions—that it is not among the interloper class?

The answer to this query will appear in our third talk which you will find in our next issue.

The MacLean Publishing Co.
143-153 University Avenue, Toronto

Publishers of:

The Financial Post
Canadian Grocer
Hardware and Metal
Dry Goods Review
Men's Wear Review

Bookseller and Stationer
Canadian Machinery
Canadian Foundryman
Druggists' Weekly
Power House

Canadian Shipping
Printer and Publisher
Sanitary Engineer
Canadian Automotive
Trade

LAVATORIES

Steel Trough & Machine Co., Ltd., Tweed, Ont.

LEAD

Canada Metal Co., Ltd., Toronto.
 Empire Mfg. Co., Ltd., London and Toronto.
 H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
 Standard Sanitary Mfg. Co., Ltd., Toronto,
 Hamilton.

MACHINISTS' TOOLS

J. H. Williams & Co., Brooklyn, N. Y.

MALLEABLE IRON CASTINGS

Gurney Foundry Co., Limited, Toronto.
 Fittings, Limited, Oshawa.

MACHINE BOLTS AND NUTS

Fittings, Limited, Oshawa.

MIXING VALVES

Canada Metal Co., Ltd., Toronto.
 Empire Mfg. Co., Ltd., London and Toronto.
 H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
 Standard Sanitary Mfg. Co., Ltd., Toronto,
 Hamilton.
 Port Hope Sanitary Mfg. Co., Ltd., Port Hope.

PACKING

Grant E. Cole Co., 23 River Street, Toronto.

RADIATOR FOOT RESTS

Empire Mfg. Co., Ltd., London and Toronto.
 Wolverine Ltd., Toronto, Ont.
 W. H. Cunningham & Hill, Ltd., Toronto.

PACLESS RADIATOR VALVES

Kerr Engine Co., Walkerville.
 C. A. Dunham Co., Ltd., Toronto, Ont.

PIPE AND RADIATOR HANGERS

Beaton & Cadwell Mfg. Co., New Britain,
 Conn.
 W. H. Cunningham & Hill, Ltd., Toronto.
 Healy-Ruff Company, Minneapolis, Minn.

PIPE, BLACK AND GALVANIZED

Canada Metal Co., Ltd., Toronto.
 Canadian Tube and Iron Co., Ltd., Montreal.
 Empire Mfg. Co., London and Toronto.
 H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
 Standard Sanitary Mfg. Co., Ltd., Toronto,
 Hamilton.

PIPE CLEANSER

Chamberlain Desolve Co., Ltd., Toronto.
 Empire Mfg. Co., Ltd., London and Toronto.
 Hercules Chemical Co., Inc., New York City.
 Wolverine, Ltd., Toronto, Ont.
 W. H. Cunningham & Hill, Ltd., Toronto.

PIPE JOINT COMPOUNDS

Wolverine, Ltd., Toronto, Ont.
 Empire Mfg. Co., Ltd., London and Toronto.
 W. H. Cunningham & Hill, Ltd., Toronto.

PIPE, SOIL AND FITTINGS

Anthes Foundry Co., Toronto and Winnipeg.
 Canada Metal Co., Ltd., Toronto.
 Empire Mfg. Co., Ltd., London and Toronto.
 Fittings, Limited, Oshawa.
 H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
 Standard Sanitary Mfg. Co., Ltd., Toronto,
 Hamilton.
 Toronto Hardware Mfg. Co., Toronto.
 Warden King, Ltd., Montreal.

PIPE THREADING TOOLS AND MACHINERY

Borden Canadian Co., Warren, Ohio.
 A. B. Jardine & Co., Hespeler.
 W. H. Cunningham & Hill, Ltd., Toronto.

PIPE WRENCHES

J. H. Williams Co., Brooklyn, New York.
 W. H. Cunningham & Hill, Ltd., Toronto.

PLUMBERS' TOOLS

J. H. Williams & Co., Montreal, Que.
 W. H. Cunningham & Hill, Ltd., Toronto.

PNEUMATIC WATER SUPPLY TANKS

Empire Mfg. Co., London and Toronto.
 Steel Trough & Machine Co., Ltd., Tweed, Ont.

PORCELAIN WARE

Canada Metal Co., Ltd., Toronto.
 Empire Mfg. Co., London and Toronto.
 H. Mueller Mfg. Co., Ltd., Sarnia, Ont.

PUMPS

W. H. Cunningham & Hill, Ltd., Toronto.
 Grant E. Cole Co., 23 River Street, Toronto.
 H. Mueller Mfg. Co., Limited.
 Smart Turner Machine Co., Ltd., Hamilton, Ont.
 Steel Trough & Machine Co., Ltd., Tweed, Ont.
 The Westco Pumps Limited, Toronto.
 United Brassfounders & Engineers, Ltd.,
 Manchester, Eng.

PUMPING SYSTEMS, AUTOMATIC

Canada Metal Co., Ltd., Toronto.
 H. Mueller Mfg. Co., Limited.
 Smart Turner Machine Co., Ltd., Hamilton, Ont.
 The Westco Pumps, Limited, Toronto.
 Beaton & Cadwell Mfg. Co., New Britain, Conn.

RADIATORS

Gurney Foundry Co., Limited, Toronto.
 Lord & Burnham Co., Ltd., Toronto.
 Warden King Ltd., Montreal.

RADIATOR HANGERS

Healy Ruff Company.

RADIATOR NIPPLES

Fittings, Limited, Oshawa.

RADIATOR TRAPS (STEAM)

C. A. Dunham Co., Ltd., Toronto.
 Grant E. Cole Co., 23 River Street, Toronto.
 H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
 United Brassfounders & Engineers Ltd., Man-
 chester, Eng.

RIVETS

Fittings, Limited, Oshawa.

RANGE BOILERS

Standard Sanitary Mfg. Co., Ltd., Toronto,
 Hamilton.
 The Canadian John Wood Mfg. Co., Toronto.
 Toronto Hardware Mfg. Co., Toronto.

REDUCING PRESSURE VALVES

Grant E. Cole Co., 23 River Street, Toronto.
 C. A. Dunham Co., Ltd., Toronto.
 J. E. Farrell, 210 Galley Ave., Toronto, Ont.
 H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
 United Brassfounders & Engineers, Ltd.,
 Manchester, Eng.

RETURN TILTING TRAPS

J. E. Farrell, 210 Galley Ave., Toronto, Ont.
 Grant E. Cole Co., 23 River Street, Toronto.

ROOF FLANGES AND FLASHINGS

Canada Metal Co., Ltd., Toronto.
 Empire Mfg. Co., London and Toronto.
 Standard Sanitary Mfg. Co., Ltd., Toronto,
 Hamilton.

SEPTIC TANK VALVES AND SYPHONS

Anthes Foundry Co., Ltd., Toronto.
 Empire Mfg. Co., London and Toronto.
 H. Mueller Mfg. Co., Ltd., Sarnia, Ont.

SINK BRACKETS

Fittings, Limited, Oshawa.

SOCKETS, WIRE ROPE

J. H. Williams & Co., Montreal, Que.

SOLDER

Canada Metal Co., Ltd., Toronto.

STANDS, VISE, PORTABLE

H. P. Martin & Sons, Owensboro, Kentucky.

STEAM SPECIALTIES

Grant E. Cole Co., 23 River Street, Toronto.
 C. A. Dunham Co., Ltd., Toronto.
 Empire Mfg. Co., London and Toronto.
 J. E. Farrell, 210 Galley Ave., Toronto, Ont.
 Kerr Engine Co., Walkerville, Ont.
 Smart Turner Machine Co., Ltd., Hamilton, Ont.
 United Brassfounders & Engineers, Ltd.,
 Manchester, Eng.

STEAM TRAPS

Grant E. Cole Co., 23 River Street, Toronto.
 C. A. Dunham Co., Ltd., Toronto.
 J. E. Farrell, 210 Galley Ave., Toronto, Ont.
 United Brassfounders & Engineers Ltd.,
 Manchester, Eng.

STORAGE TANK HEATERS

J. E. Farrell, 210 Galley Ave., Toronto, Ont.

STOVES

Gurney Foundry Co., Limited, Toronto.

STOVES, GAS AND COAL

Gurney Foundry Co., Ltd., Toronto.

SUMP PUMPS

Smart Turner Machine Co., Ltd., Hamilton, Ont.

SWIVELS, HOOK

J. H. Williams & Co., Brooklyn, N.Y.

SYSTEM—ELECTRIC

Steel Trough & Machine Co., Ltd., Tweed, Ont.

SYSTEMS—SCHOOL

Steel Trough & Machine Co., Ltd., Tweed, Ont.

TANKS—GASOLINE

Steel Trough & Machine Co., Ltd., Tweed, Ont.

TANKS, STEEL

The Canadian John Wood Mfg. Co., Toronto

TANKS—STORAGE

Steel Trough & Machine Co., Ltd., Tweed, Ont.

TANK BULBS, (RUBBER)

Canada Metal Co., Ltd., Toronto.
 W. H. Cunningham & Hill, Ltd., Toronto.

THUMB SCREWS AND NUTS

J. H. Williams & Co., Brooklyn, N.Y.

TOOLS

Wolverine, Ltd., Toronto.
 Empire Mfg. Co., London and Toronto.
 H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
 Standard Sanitary Mfg. Co., Ltd., Toronto,
 Hamilton.
 J. H. Williams & Co., Brooklyn, N.Y.
 W. H. Cunningham & Hill, Ltd., Toronto.

TORCHES

W. H. Cunningham & Hill, Ltd., Toronto

UNIONS

Canada Metal Co., Ltd., Toronto.
 Empire Mfg. Co., London and Toronto.
 H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
 United Brassfounders & Engineers, Ltd.,
 Manchester, Eng.

VAPOR HEATING SYSTEMS

C. A. Dunham Co., Ltd., Toronto.

VISES, CHAIN, CLAMP, MOUNT

J. H. Williams & Co., Brooklyn, N.Y.

VITRO TANKS

Galt Brass Co., Ltd., Galt.

VACUUM SYSTEMS OF HEATING

C. A. Dunham Co., Ltd., Toronto.
 Smart Turner Machine Co., Ltd., Hamilton, Ont.

VALVES

Empire Mfg. Co., London and Toronto.
 Jenkins Bros., Ltd., Montreal, Que.
 The Kerr Engine Co., Walkerville, Ont.
 United Brassfounders & Engineers Ltd.,
 Manchester, Eng.

WATER SUPPLY SYSTEMS

Empire Mfg. Co., London and Toronto.
 Smart Turner Machine Co., Ltd., Hamilton, Ont.
 Standard Sanitary Mfg. Co., Ltd., Toronto,
 Hamilton.
 Steel Trough & Machine Co., Ltd., Tweed, Ont.
 The Westco Pumps, Limited, Toronto

WASHERS

Canada Metal Co., Ltd., Toronto.
 W. H. Cunningham & Hill, Ltd., Toronto

WASHING MACHINES

Gurney Foundry Co., Ltd., Toronto.

WRENCHES, SET, DROP FORGED. ENGINEERS, SOCKET AND CHAIN PIPE

J. H. Williams & Co., Brooklyn, N.Y.

WROUGHT COUPLINGS AND NIPPLES

Canada Metal Co., Ltd., Toronto.
 Fittings, Ltd., Oshawa.

**When Answering Advertisements Mention
 SANITARY ENGINEER**



Ever see two boilers in one ?

That's what Burnham Boilers are. Great big man's size heat givers for cold, bleak days. Or on uncertain spring days, they run at half time just as economically as when at full blast. The grates shake half at a time, so you could run half the boiler at a time.

Write us for complete information.

Lord & Burnham Co. Limited
of Canada

(Boiler Department)

Harbor
Commission
Bldg.,
Toronto



Factory:
St. Catharines,
Ontario

PNEUMATIC WATER SUPPLY SYSTEM

Gives country residents all the advantages of a city water system without the excessive cost

The wide-awake dealer will make big profits out of this system among customers who now have difficulty with their water supply. It is so simple to operate and costs practically nothing for upkeep.

The outfit consists of an air-tight steel tank which can be placed in the basement, and a "Myers" famous guaranteed pump (hand or power), suitable for pumping air or water, together with pipes and fittings. Any plumber or gas fitter can easily install it. Every outfit guaranteed to do the work for which it is designed. For small or large dwellings.

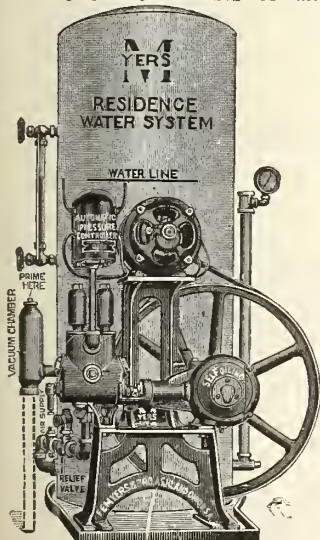
Write us for Water System Catalogue and prices. Now is the time to interest your customers.

The
**STEEL TROUGH &
MACHINE CO., LTD.**

Tweed, Ontario

TORONTO OFFICE:—220 King
St. West; A. R. Wooldridge,
Representative.

MONTREAL OFFICE:—10 Victoria St., G. M. Price, Representative.



CHRISTIE UNIT SYSTEM SEPTIC TANKS

Convenience for ALL. Thousands of homes can be modernized. Any place where there is NOT a Public Sewer CHRISTIE'S UNIT SYSTEM SEPTIC TANK is the only correct method of disposal.

HEALTHY, CONVENIENT, ECONOMICAL

Made of Reinforced Concrete. Can be shipped anywhere. Easy to install. Low in price. Both syphon and overflow type. No job too small. None too large. We have a type for both heavy and light soils.

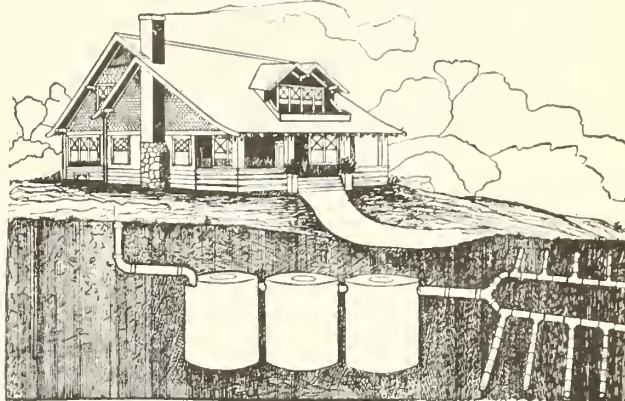
HOMES, SCHOOLS and SUMMER HOUSES.

Write for catalogue and dealers' price list.

Manufactured By

Christie Concrete Products Co.

Lindsay, Ontario



PATENTED

A Suggestion

"Medium Weight soil pipe has a round bead pattern at the hub to distinguish it readily from the Extra Heavy weight pipe which has a flat bead pattern."

This is only a matter of design, one being as strong as the other.

We respectfully suggest the advisability of continuing the excellent practice of invariably specifying medium weight pipe in the round bead pattern."

**TORONTO HARDWARE MFG.,
CO., LIMITED**

Wanted

Rates for Classified Advertising

Advertisements under this heading 3c per word for first insertion; 2c for each subsequent insertion.

Where answers come to Box number in our care to be forwarded, 5 cents extra per insertion must be added to cover postage, etc.

Contractions count as one word, but five figures (as \$1,000), are allowed as one word.

Rates (payable in advance). When panels are desired a charge of \$2.50 is made for a panel 1 inch deep by 2 $\frac{1}{8}$ inches wide. Minimum charge for any ad. \$1.00.

FOR SALE

ADDRESSING MACHINE FOR SALE—WE have a complete Belknap Addressing Equipment for sale. This equipment is still in use in our Subscription Department and is in excellent working order. We have placed an attractive price on this outfit, and would advise manufacturers or merchants having a mailing list to let us tell you how it will save you money. We will give a guarantee as to the proper working condition of this equipment. The MacLean Publishing Co., Ltd., 143 University Avenue, Toronto,

FOR SALE

TAYLOR SAFES FOR SALE—RARE OPPORTUNITY to secure a safe at small cost. They are in splendid condition. Inside dimensions and prices are as follows: 15 in. deep, 2 ft. 6 in. wide, 3 ft. 11 $\frac{1}{2}$ in. high, fitted with built-in compartment. Price \$250.00. 18 in. deep, 2 ft. 8 in. wide, 4 ft. 5 in. high, fitted with steel compartment. Price \$200.00. Apply Box No. 701, Sanitary Engineer, Toronto.

Sanitary Engineer

is the logical medium to use if you have a message for the Plumbing and Heating trade of Canada

The Difference in Advertising Is the Difference in Men

Of itself, advertising is little. And the differences in it are the differences which exist in men.

Just as some men are strong and virile and interesting, so is some advertising. And just as some men are ineffectual and weak and boring, so is some other advertising.

"Does it pay to advertise?" It pays those men who are keen enough students of the public to make it pay them. It pays those men who are truthful, sincere, interesting and believable.

It pays the men whose product deserves the payment, whose brains are keen enough to organize for success and judge enough of the human mind to know how to tell their story with sincerity and interest.

So when you judge advertising, judge it by how it is used and by whom—not of itself and of itself alone.

Remember, an ugly man looks just as ugly in a mirror.

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Products that Satisfy



Fig. No. 2816B

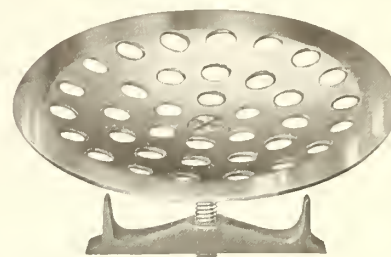


Fig. No. 2813



Fig. No. 2812B



Fig. No. 3030B

*It Pays to have
Wolverine
Quality Specialties
On Hand for
Instant Use*

*Unconditionally
Guaranteed*

*Use Our Mail Order
Service*

Farrfhern

Atmospheric Steam Heating Systems

Give a noiseless perfect circulation, without the use of air vents or traps on radiators. No Vacuum Pumps are used. Consequently it saves fuel and costs for maintenance.

Farrfhern Heating will make the work of Contractors more profitable.

It is for buildings of every type and size.

Let us co-operate with you on the next heating prospect. The more difficult it may be, the better we will like it.

Director of Sales

J. E. FARRELL

304 MANNING CHAMBERS, TORONTO, ONTARIO



Tapped Closet Bend

Easier to attach
More permanent
Cost less



WROUGHT PIPE



Suitable for the approaching period of building activity, road construction, etc. This is a line of great importance in making successful, profitable contracts. Our C. T. Brand of Wrought Pipe has been

THOROUGHLY INSPECTED

by practical, experienced men. It is tested to 600 lbs. hydraulic pressure, and branded with our trade-mark. We carry this line of reliable pipe in sizes 1/8-in. to 4-in. Black or Galvanized. We also manufacture nipples and couplings, black and galvanized, in all sizes.

Ask your Jobber for C. T. Brand Wrought Pipe

Canadian Tube and Steel Products Co., Ltd.

Operating Canadian Tube and Iron Co., Limited
Works at Lachine Canal, Montreal



The Martin Portable Vise Stand

light in weight—
only fifty pounds

Can be carried anywhere with
out inconvenience.

Put up in two seconds; no bolts, screws or fastenings needed.

Use the Martin Portable Vise Stand where pipe or conduit must be bent, cut or threaded. 10 days free trial.

If your jobber can't supply you—write us.

H. P. MARTIN & SONS

803 W. 12th Street OWENSBORO, KY.

CANADIAN REPRESENTATIVE:—L. F. Mayne, 875 Trafalgar Street, London, Ontario.



Printing

Printing is our specialty and on the production of the highest grade of printed matter we put the entire effort of our experienced organization.

We specialize in the production of Magazines, Periodicals, House Organs, Booklets, Catalogues, Folders.—Let us figure with you on your next job.

We are sure we can interest you.

COMMERCIAL PRINTING DIVISION

The MacLean Publishing Company, Limited

143-153 University Avenue, Toronto, Ontario



Dart Unions

Locked beyond possibility of leakage

The use of Dart Unions is positive insurance against leaks.

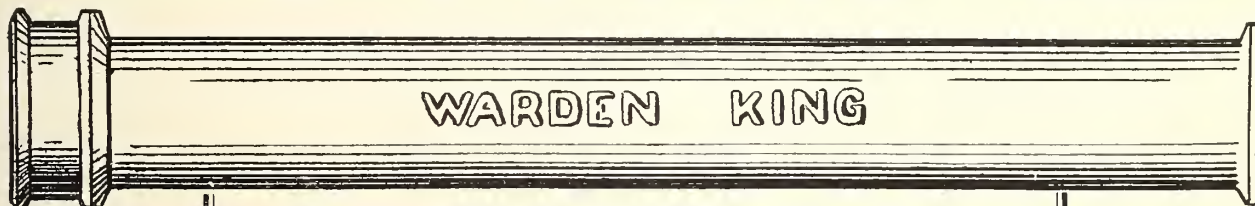
Heat, cold, expansion, contraction or vibration are encountered and overcome.

The joint being Bronze to Bronze and the Malleable Iron Pipe Ends and Nuts being of extra weight ensures that the Dart will "stay put" till taken apart with a wrench.

Your Jobber Sells Them

Manufactured by
DART UNION COMPANY, LIMITED
TORONTO, CANADA

**Easily
Connected**



"WARDEN KING"

Soil Pipe That Endures

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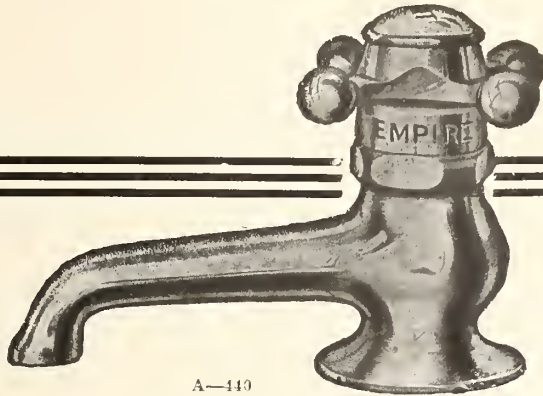
Sanitary Engineer

Plumber and Steamfitter of Canada

Vol. XVII.

PUBLICATION OFFICE, TORONTO, JUNE 1, 1923

No. 11



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“Emco” Roller Bearing Basin Cocks have proven most satisfactory where a basin cock is subjected to hard and constant usage.

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Because—

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They cost no more than any other Tank

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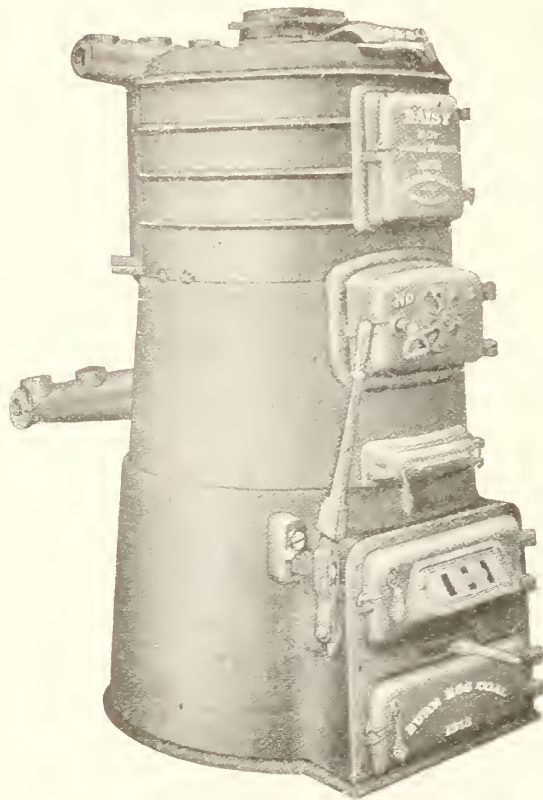
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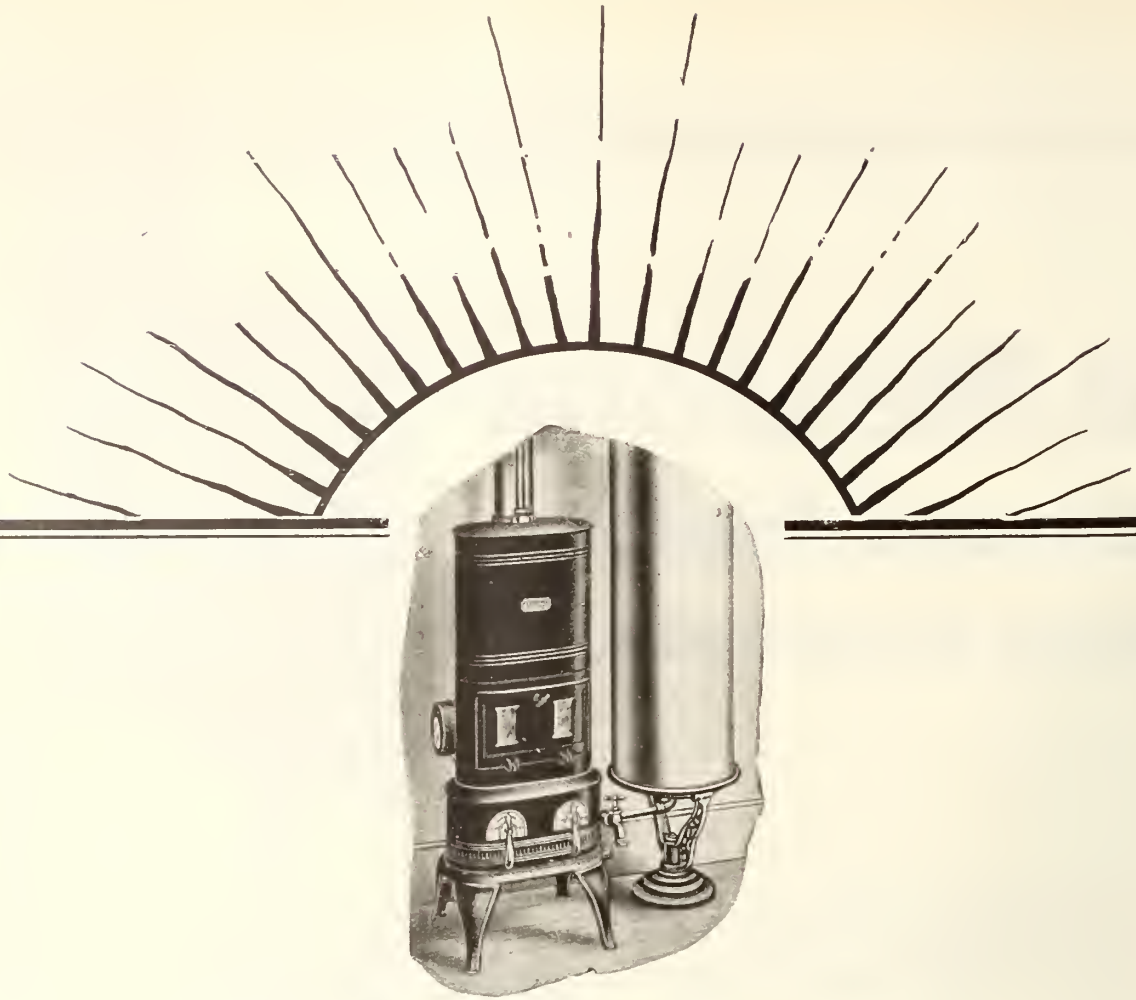
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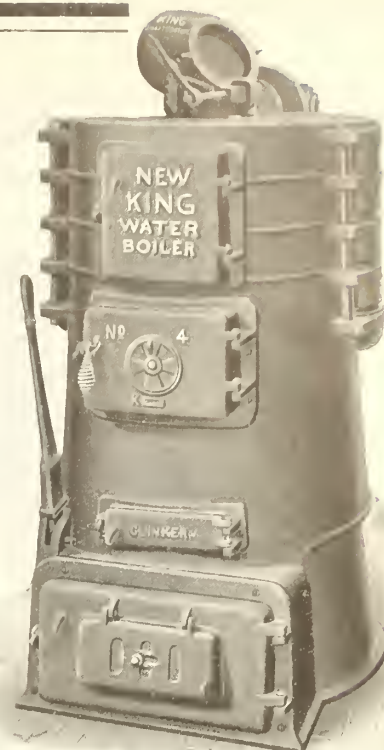
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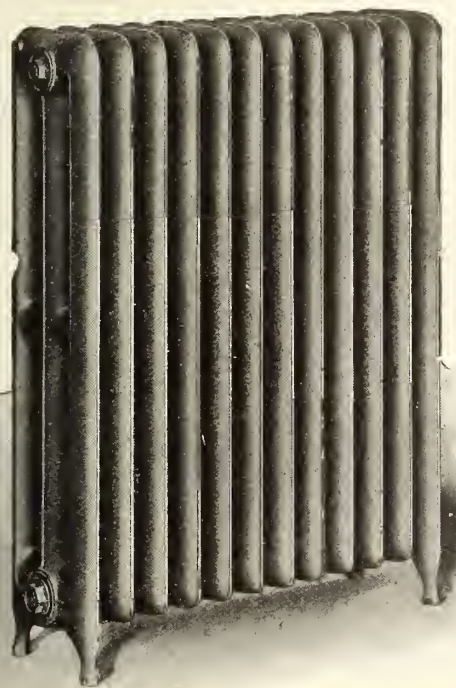
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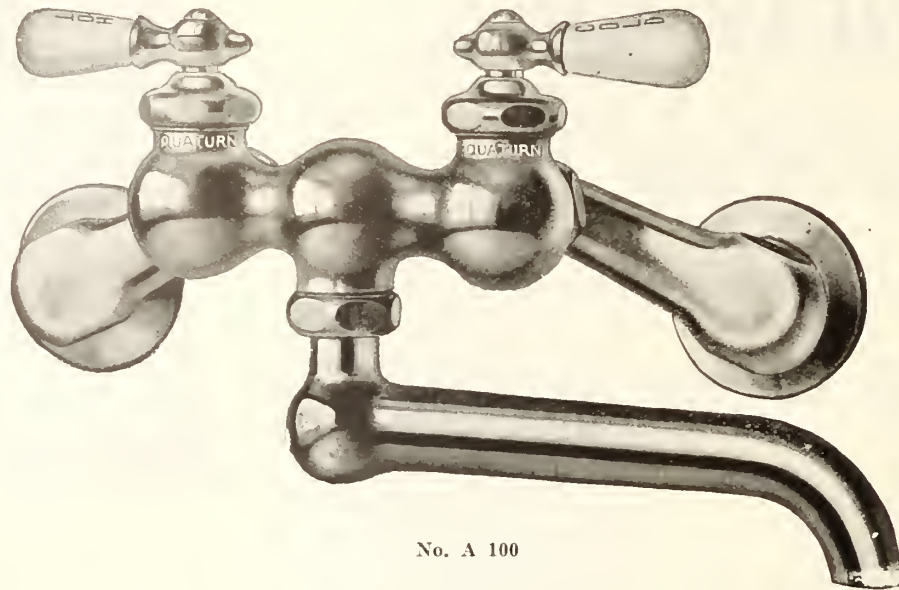
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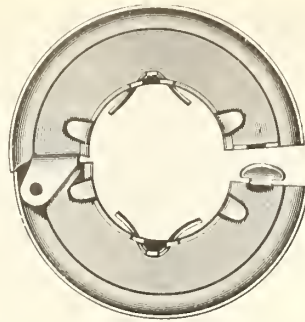
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No. 10 & 12
Regular 1" Flange



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to 6" inclusive

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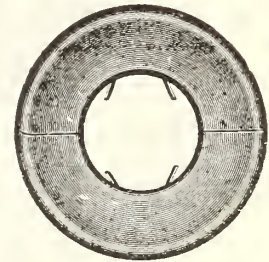
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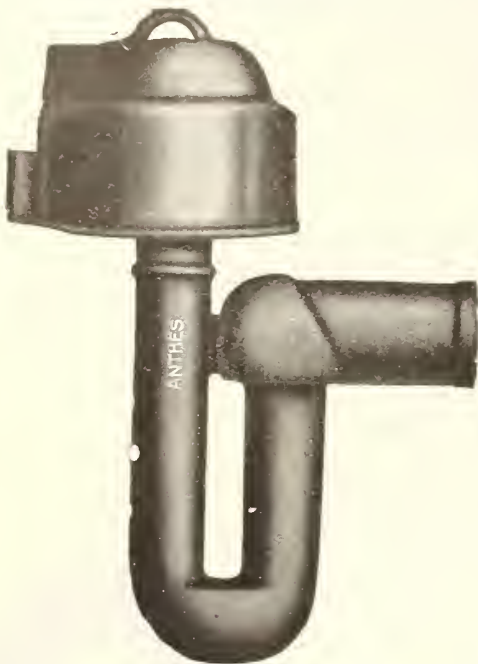
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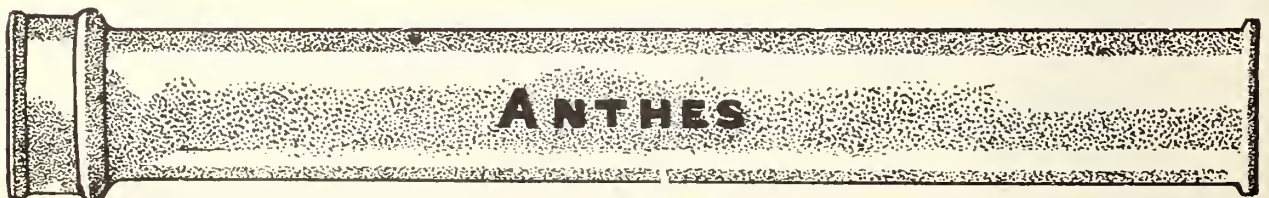
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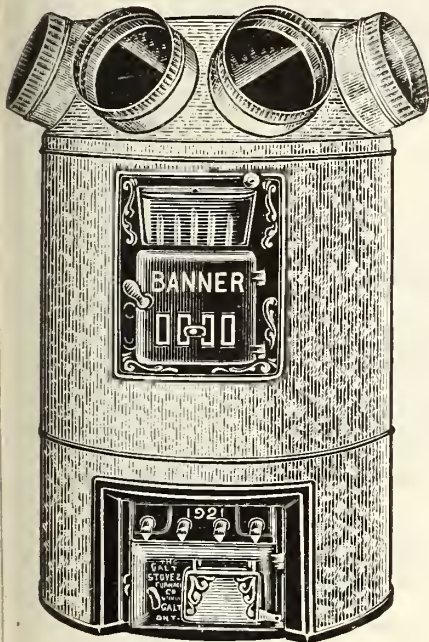
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Manufacturers of Cast Iron Soil Pipe and Fittings





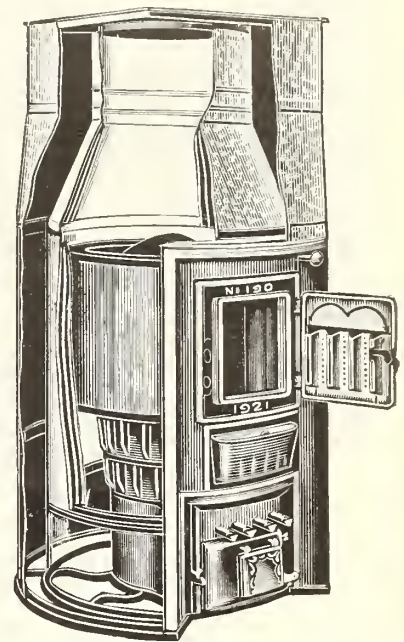
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"Standard"
PLUMBING FIXTURES

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"Made in Canada"

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PLUMBER AND STEAMFITTER OF CANADA

ESTABLISHED 1907

PUBLISHED TWICE MONTHLY

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No. 10

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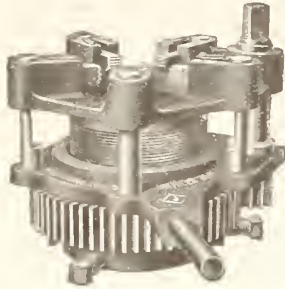
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This tool threads pipe with less labor than others. It is so simple in construction that it is easier to do work right than to do it wrong. It is compact, light in weight, strong and durable, accurate and speedy. It costs no more than imitations and in one month's production it will more than pay for itself.

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Revised Budget Resolutions Affect Sanitary and Heating Industry

Number of Important Changes in Customs and Inland Revenue—
What Members of the Industry Think of the Changes—"Manufacturers" Doing Over \$10,000 of Business to be Licensed—New
Sales Tax to Avoid Pyramiding

THE original budget resolutions as announced by the Minister of Finance, and the subsequent amendments which have just been made, concern a number of points of interest to sanitary engineers.

The imposition of a six per cent. consumption or sales tax is to be made on the sale price of all goods produced or manufactured in Canada. This tax, which does not now become effective until January 1 next, is imposed at the source—at the first stage of business operations. It will apply on the duty-paid value both of home-made and imported goods. This tax will take the place of the present graduated sales tax amounting to a total of 4½ per cent. with which the trade are well acquainted. It is felt that the eliminating of pyramiding in this tax and the elimination from the sales tax of the raw materials purchased by manufacturers, will considerably reduce the burden of the sales tax when this change is made.

The sales tax is not to be payable in the case of goods exported, or on sales between licensed manufacturers of materials to be used in the production of articles. It will not apply on goods imported by a licensed manufacturer or producer to be used in the production of articles for sale.

To Interest Tinsmiths

Of interest to tinsmiths in view of various rulings which have been made classing them as "manufacturers" is the provision for licensing of all manufacturers doing over \$10,000 of business a year. The provision covering this is as follows:

(1) A manufacturer or producer who produces goods to the value of ten thousand dollars or more during any fiscal year shall take out an annual license, the fee therefor not to exceed two dollars. The minister may direct that a manufacturer or producer who does not manufacture or produce goods to the value of ten thousand dollars a year, and who uses a substantial portion of goods

which are exempt from the tax is liable to tax, shall take out a license and shall be subject to the same conditions as the licensed manufacturer or producer.

This provision is effective on the day of passing such enactment.

License Certain Jobbers

A provision concerning the licensing of certain jobbers who sell a large proportion of their goods to licensed manufacturers, is of interest to the plumbing and heating industry in view of the fact that many firms are both manufacturers and wholesalers. The provision is as follows:

(2) A wholesaler or jobber who sells not less than fifty per cent. of his total sales of goods to licensed manufacturer or producer, to be used in articles to be produced for sale, may be granted an annual license, the fee therefor not to exceed two dollars. Such licensed wholesaler or jobber shall give security that he will keep proper accounts and render true statements of sales to licensed manufacturers or producers and pay any tax imposed by the said act.

How the Tax is Payable

(3) The said tax shall be payable by a licensed wholesaler or jobber at the time of the sale by him to other than a licensed manufacturer or producer of goods the price of which shall include in the amount of excise duties, if sold in bond, or the price of which shall be the duty paid value thereof, if imported.

(6) A manufacturer or producer who does not produce goods of a value over ten thousand dollars a year, unless he comes under the provision of paragraph one of section three of this resolution, shall not pay the said consumption or sales tax on goods produced by him, but he shall pay the tax on importation.

Provision Made for Refund

(7) A refund of the amounts of the said consumption or sales tax may be granted in the following cases, that is to say:

(a) To a wholesaler, jobber or other dealer in goods sold to a licensed manufacturer or producer to be used in articles produced for sale or with the consent of the wholesaler, jobber or dealer a refund or deduction may in the like case be granted to a licensed manufacturer or producer; or

(b) To a licensed manufacturer or producer or a licensed wholesaler or jobber, in respect of goods on hand on the 1st of January, 1924, and which are to be used in the production of articles for sale, no refund to be allowed in respect of goods on hand after the 31st of March, 1924; or

(c) On goods manufactured or produced in Canada, when satisfactory evidence is produced that such Canadian goods are at a disadvantage, by reason of the fact that like goods may be imported into Canada free of duty, such refund or reduction not to exceed 25 per cent. of the said tax otherwise payable; or

(d) On imported goods on which customs duties have been refunded on exportations.

The budget provides for a discount of 10 per cent. on whatever duty may now be payable according to the varying rates of the British preferential tariff, this not to apply in the case of any article on which the duty is not above 15 per cent., and to apply only when the goods are brought direct to the ports of Canada.

Receipt Tax Changed

The receipt tax is considered sound and is to be adhered to. An amendment just passed provides for putting changes in this tax into effect from the date when the bill founded on the resolution is assented to. This cancels the former regulations as respects receipts by or on postcards, form letters and letters, and such forms of receipts will therefore now be subject to tax.

The tax on cheques is changed somewhat by making the maximum tax on

(Continued on page 32)

Some Cancellation of Early Deliveries Due to Postponement of New Sales Tax

Some Plumbers Had Placed Orders With Manufacturers for Delivery in July of Goods Ordinarily Delivered in August and September, But Now There is No Advantage—Postpones Any Revision of Plumbing Prices on This Account

DISCUSSING the amendments to the tax and tariff provisions, as announced in this issue of Sanitary Engineer, a number of manufacturers and wholesalers have raised some interesting points in connection with the application of the amended resolutions to the sanitary and heating industry.

Concerning the change by which wholesalers doing "fifty" per cent. or more of their business with licensed manufacturers will be licensed, instead of "thirty" per cent. as formerly, one Toronto wholesaler pointed out that this was a much more favorable condition. Under the thirty per cent. a number of wholesalers who sell very largely to the trade in the ordinary way would come under the provision and be licensed whereas others who were really in competition but whose sales to licensed manufacturers did not quite come up to 30 per cent. would not be licensed. The disadvantages of this discrimination are quite apparent.

This wholesaler points out that while the disadvantage of tying up capital in sales tax still exists in the case of the unlicensed wholesaler as compared with the licensed jobber, that the new ruling removes from the licensed class practically every wholesaler except those who do almost an exclusive trade with manufacturers, and who are not ordinarily regarded as being in competition with wholesalers doing the bulk of this business with the trade. The amendment puts all such jobbers on an equal footing and removes any discrimination.

Gives More Time

This wholesaler intimated that the postponement of putting the increased Sales Tax into effect until January 1, 1924, will give much more time for the matter to be fully gone into and for wholesalers and manufacturers to figure it in making their plans for the next year. Altering the tax in midsummer would make it difficult for the trade to plan for its effect on seasonal lines. It was pointed out that the tax was postponed until January 1 next probably on account of the fact that many companies end their financial year at that time, and the changed tax could better be provided for at that time.

Another manufacturer stated it as his opinion that the application of the

higher sales tax was postponed because protests made by manufacturers and wholesalers that a special mid-summer physical inventory of their business would have to be taken to provide for refund of sales tax on materials on hand and the increased tax to apply on sales. As most firms conduct their annual inventory at the end of the year in any case, the new provisions will entail less work at that time.

Postpones Revision of Prices

The postponement of the higher sales tax will postpone any revision of prices on this account such as has been predicted. It has brought about a change in delivery requirements of jobbers as well, due to the fact that with the higher tax coming into effect on purchases from manufacturers after August 1, some jobbers had placed orders for delivery in July which ordinarily would not have been delivered until August and September. Letters are now going to manufacturers cancelling the earlier delivery date and letting delivery take its normal course.

There is a new provision which allows for the deduction on account of sales tax on goods sold at a price fixed by contract of sale made before May 12, 1923, and still in force at the time of delivery of the goods, provided such deduction does not exceed the difference between the amount of the $4\frac{1}{2}$ per cent. sales tax now in effect and the proposed tax of 6 per cent. to be in effect after January 1, 1924, and that this deduction will not apply on goods delivered after March 31, 1924. Discussing this new provision, a wholesaler pointed out that with the exception of certain cases where unusual conditions existed, this would apply most generally to general contracts which are figured on much in advance and where orders have been placed or specifications submitted on the basis of prices figured on the existing sales tax. It was also thought to apply in the case of a wholesaler or retailer having made a contract with a manufacturer for goods at a certain price before May 12, 1923, where such goods will not be delivered until after January 1, 1924, when the increased sales tax ordinarily becomes effective.

Postcard and Letter Receipts Now to be Taxed as Receipts

SOME changes are likely to be made in the procedure in a number of business houses as result of the amendment which makes postcards, form letters and letters, in the form of receipts, taxable as receipts. These were formerly exempt from the receipt tax and as result a number of firms had considerable quantities of such forms printed so as to effect a saving of the amount of the receipt tax. One wholesale plumbing merchant in Toronto who has been using the postcard system still has a large supply of them on hand and intends to use them while they last. Of course they will have to bear the receipt tax stamp of 2 cents on all amounts of \$10 and over. This card merely states the amount of the remittance, pointing out that this has been credited to the account. When these cards are used up a return will be made to the previous plan of receipting the invoices or statements.

A question has been raised by a whole-

saler in this connection concerning the status of letters which have to be written concerning an adjustment of account. For instance a customer sends a remittance and draws attention to some error in his statement of account. It is necessary for the wholesaler or manufacturer to write a letter concerning the adjustment, but the letter may also acknowledge the receipt of the money. The only satisfaction which can be secured in the way of rulings on such matters yet is that firms need only provide one receipt for money received and this receipt whether in the form of a letter involving other matters as well, or in the form of a receipted statement, must bear the tax stamp.

Another Toronto manufacturer has also been using a special printed form designed to act as a receipt, but is of the opinion that this plan will be discontinued in view of the changes which have been made. He is of the opinion that because of the extent to which firms

Important Points in Budget Resolutions Affecting Sanitary and Heating Engineers

Imposition of consumption or sales tax of 6 per cent. after January 1, 1924.

After that date sales tax to be source of production or import and not carried down through wholesalers, etc., as at present.

Licensing of all "manufacturers" doing over \$10,000 of business a year. This will probably include tinsmiths who have been classed as "manufacturers," for sales tax purposes.

Sales between licensed manufacturers, such as on raw and semi-finished material are exempt from sales tax.

Refund to be made to manufacturers on materials on hand on January 1 and up to March 31, 1924.

Brass and copper scrap free on all tariffs.

Discount of 10 per cent in British preference tariff on

certain goods admitted through Canadian ports without transshipment.

Placing of drain tiles for farm purposes on the free list.

Duty on emery and carborundum wheels altered.

Wholesalers selling over 50 per cent. of turnover to licensed manufacturers to have license and keep records of sales.

Receipt tax exemption on postcard, form letter and letter receipts is cancelled. These now to be taxable.

Stamp tax maximum lowered from \$2 to \$1.

Deduction on account of sales tax on goods sold on contract made before May 12, 1923, and still in force at time of delivery of goods.

Drawn or seamless iron or steel tubing over 4 inch in diameter for drilling for water, gas and oil.

Emery and carborundum wheels altered on customs tariffs.

have evaded this tax by following the plan of using cards or form letters as receipts.

A large number of firms have been following this plan and steps are being taken to alter it to conform to the new regulations, effective from the enactment of the Bill.

An Ontario manufacturer of tools, heating equipment, etc., is of the opinion that the higher Sales Tax of 6 per cent. imposed at the source will give him considerably more accounting work. He states it is the intention to show the Sales Tax on all invoices to jobbers and retailers and manufacturers, subject to departmental rulings concerning certain products which are to be considered raw material for jobbers, retailers or other manufacturers.

"We consider that if the 6 per cent. sales tax is not shown on the invoice it will become a turnover tax for manufacturers instead of a sales tax as intended by the government. The reductions in the British preference will certainly have an effect on lines we manufacture in competition with Britain. We will have to reduce our prices accordingly or cease to manufacture such lines.

"Any lines on which we have established a resale price, it is our intention to increase this price so that the consumer will pay the additional price and the profit of the jobber or retailer shall not be reduced."

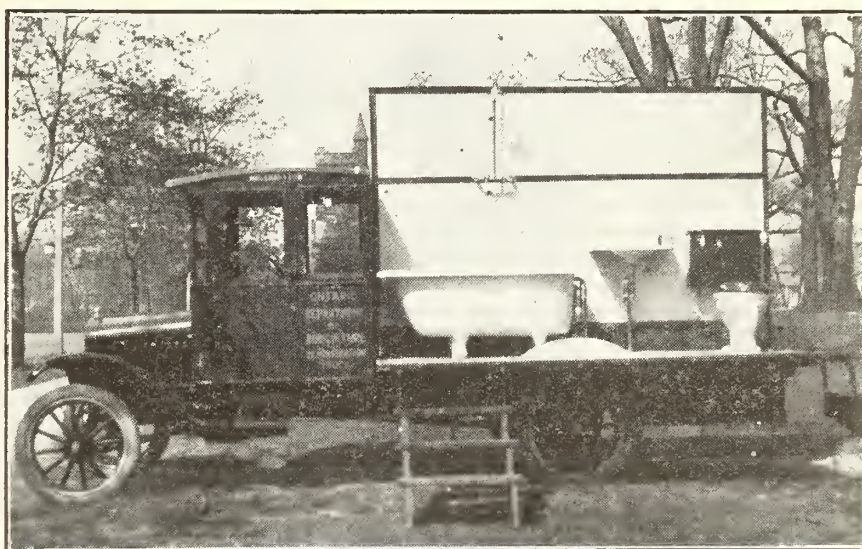
C. A. McKane, Grimsby, Ont. has plumbing contract for two family flat which R. J. Snetsinger is building.

PLUMBING TRADE QUIET

John W. Bruce, Toronto, international vice-president of the plumbers and steamfitters, in a recent interview did not endorse previous stories of improving conditions on the Pacific coast particularly in the plumbers' or-

ganization. Of the entire membership in Vancouver 40 per cent. had left for the United States and of the remaining 60 per cent., approximately half of these were out of employment. The lumbering industry was, however, improving to a certain extent and this would eventually have a good effect.

To Improve Rural Sanitation



The equipment of the truck fitted up with sanitary and heating equipment by the Ontario Government as fully described in a recent issue of *Sanitary Engineer* is well shown in this illustration secured by *Sanitary Engineer* while the truck was on exhibition near the Parliament Buildings, Toronto. The completeness of the equipment is clearly indicated, all fixtures being connected up ready for use. On the other side of the central partition is equipment for a modern laundry.

Follows Building Permits

ONE live Hamilton sanitary and heating engineer whose business has been sufficiently active throughout many months past to justify the steady employment of about a dozen mechanics, recently told Sanitary Engineer of the methods he has adopted to further the sale of heating equipment.

While he makes a big endeavor through the use of special report cards to find out the condition of the heating equipment in the homes in which certain work is being done, and concentrates on these prospects with the most effective material at his disposal, yet he is confident that a large proportion of work can be constantly secured in connection with new building providing the



right means are adopted to go after it. In his own particular case he is a close follower of the building permits being issued in the city. He finds that the people taking out such permits are the very best prospects for heating equipment as well as plumbing requirements. He has many splendid orders to the credit of his firm secured by being right on the job at the time the permit is issued, or sometimes before it is issued. A close association with this department of the city work enables one to secure much valuable information on contemplated work and many opportunities are offered to figure on work.

Heating Schools and Churches

SCHOOLS and churches provide a splendid field of business in sanitary and heating equipment. In such places the public health is endangered on a big scale if adequate facilities are not provided. The question of cost is not so important in such cases as with private individuals, and the sanitary and heating engineer has a real chance to get such business both for new and renewal installations providing he can go before the school boards or church boards with some definite facts concerning the value of the equipment he has to offer.

Good Business in Fuel Savers

ST. JOHN, N. B.—There are two interesting phases about the business of W. J. Crawford, a St. John, N.B., plumbing and heating contractor. The first is that despite the tendency of plumbing and heating contractors to get off the shopping district because of the increased rentals, Mr. Crawford has retained his store and office in the same location. The second interesting phase is that Mr. Crawford has recently established a side line.

The section of the city in which the Crawford shop is situated is one of the busiest of the St. John shopping sections and on what has been familiarly termed "the right side of the street." Despite the trend of the plumbing and heating contractors to the side streets and less busy thoroughfares due to the high rentals, Mr. Crawford has continued in his old stand. Being within the beaten track he is within easy access.

The side line he has established is a fuel saver, an appliance that is designed to increase the life and usefulness of coal. A side line of this type is appropriate, he says, for a heating business, particularly as there are a number of opportunities wherein both can be combined on one contract.

The Crawford plumbing and heating shop is now the only

business of this kind with headquarters on "the main stem" of St. John. The Crawfords have been interested in plumbing and heating in St. John for more than forty years.

Would Pay to Scrap Old Furnaces

ONE Ontario heating engineer who is making a good success of the sale of heating equipment, has studied very

carefully the needs of his community and has something interesting to say about the merchandising of this line. It happens to be a very Scotch community, and the majority of his prospects have that very creditable faculty of seeing that they get value for their money. Some of them were hard to move when approached on the basis that they should replace their present equipment with new stoves and furnaces, so the merchant was

ROSS BROS.

Plumbing and Heating Co. Limited

Preparedness Means a Great Deal to You

SEE THAT YOUR HEATING PLANT IS IN GOOD WORKING ORDER

Your Plumbing Fixtures Should Be Sanitary

OTHERWISE YOUR HEALTH IS IN DANGER
ARE YOU GETTING SUFFICIENT HOT WATER?

If you are of the opinion that you require any repairs

Phone 6721
FOR EFFICIENT SERVICE
Or call 10415 97th Avenue




forced to find some more effective means.

Analysing his own particular case he found that he was losing money each year through heat loss due to defective equipment. This gave him the idea and he immediately commenced to talk up through his advertising and personal effort, the fact that a new heating system would pay for itself in a very short space of time at the present cost of fuel, by the saving it would effect. The prospects were shrewd enough to realize the merit of the claim and many sales resulted.

A Young Man's Industry

JUDGING by the time and energy spent on discussions of the apprenticeship problem at recent plumbers' conventions, this question is assuming serious proportions. The pendulum of economic balance in the field of employment has swung in one year from widespread unemployment to that of actual labor shortage in many lines. This shortage is due to restricted immigration, to the emigration of some workers and the lack of any suitable apprenticeship system. The loss from apprenticeship affects the skilled trades. The job in connection with common labor is for the government, but for skilled trades a system of developing apprentices must be devised based on the fundamental question of how many new workers are needed each year in a trade.

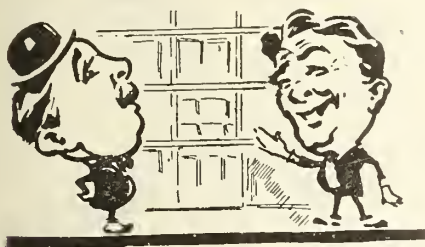
Plumbing and heating is a young men's industry, figures showing that 78.3 per cent. of the workers are under 45 and 21.7 per cent. over 45 years of age. In the United States so serious has the problem become that a national apprenticeship campaign has been instituted. A poster has been prepared entitled "Wanted, Real Boys" which employers are to put in their windows.

A booklet on "A Business Future for American Boys" is being distributed containing attractive arguments in favor of these industries. It declares that "There are no trades, occupations or professions offering more advantages than

plumbing and heating for the average boy of mechanical inclination. They offer more money in a ten-year period of life expectancy than the majority of trades or occupations. After a four-year training or apprenticeship, plumbing or heating will give a boy a highly profitable trade; an interesting and constructive work, with plenty of diversity, offering unlimited possibilities for mechanical and commercial ability. The heating and plumbing trades will pay a boy a good wage while he is learning and make him worth even more in the long run than he can secure at some temporary highly-paid job." Facts are also cited as to the business possibilities and the potential market. For example: "Of the 22,500,000 homes in the United States, approximately 18,500,000 are without efficient heating equipment and 17,500,000 are without adequate plumbing facilities. Only 680,000 of over 5,500,000 farm homes are equipped with plumbing." Much the same proportions exist in Canada, some statistics covering which appear elsewhere in this issue.

Stove Selling on a Mileage Basis

ONE Quebec heating engineer who does a good business in stoves, furnaces, ranges, etc., says that every time the county clerk issues a marriage license a stove prospect is made—some dealer somewhere is going to sell a stove at some time. That couple may never purchase an automobile, or be in the market for tires or an overstuffed living room suite, yet they will see three times as much advertising on those articles



as they will on stoves. A little concentrated solution of well-thought-out advertising applied to the stove department will produce surprising results.

Some dealers get frightened the minute the word "advertising" is mentioned. They think of advertising in terms of dollars and cents. But don't get nervous at the word advertising as used in this article—envelope inclosures, package inclosures, word-of-mouth, road signs, window displays, etc., are forms of advertising and strange to say—the cheapest but often the best. If you sell a man a good heater and he tells you he likes it, refer prospective customers to him and he'll advertise the heater for you—that's advertising in its best form—often spoken of as word-of-mouth advertising. There are just as many other inexpensive methods of advertising.

Now this man is undoubtedly a car owner and therefore he is interested in tire mileage. We never thought of such a thing as a range figured in mileage; however, here's what he has to say on the subject: "Here's a good range for \$90. It will last 16 years. Three meals per day will be cooked, which means over 1,000 meals per year. The cost per meal is only half a cent. A cheaper range, costing \$20 less, only makes a difference of one-tenth of a cent per meal. For such a small amount would a man deprive his wife of the superior features, the satisfaction of the best and the convenience and comfort of cooking?"

Are Your Buildings Well Heated?

ONE man in the trade who has had much experience calling upon plumbing and heating shops throughout the country points out that a very large portion of the trade



themselves are apparently not very well sold on the value of modern plumbing and heating equipment. True they show the most up-to-date equipment in their showrooms, but the odd thing is that in many cases they do not practise what they preach by having their own business premises and homes similarly well equipped.

A sanitary or heating engineer cannot sell modern heating equipment successfully if he himself is

not well sold on the idea, and whose place of business is not a standing advertisement of the value of such equipment. All the talking in the world won't convince a prospect that he should instal such equipment if he sees that the man who is trying to sell him does not himself follow the advice.

What a grand opportunity there is for sanitary and heating engineers to interest prospects by having a clean, well lighted, well heated and well equipped showroom or other business premises in which to talk business. It would help make the prospect feel more at home. Such equipment might also be used as a convenience for passers-by, and the prospect would certainly be much more impressed.

Retail Stores are Good Prospects

AMONG the best local prospects which the sanitary and heating engineer can find for the equipment he sells, are the retail stores. Go into any town or city and note the



hundreds of retail stores which have the poorest plumbing and heating equipment installed in them. Frequently such buildings are rushed up on a speculative basis and little attention is given to adequate heating arrangements. They could frequently be provided with

sanitary conveniences for the use of customers as well.

People are obviously not in a good mood to buy when they are uncomfortable. This is proved by long experience. There is a psychology involved here which is fully taken advantage of by various organizations which have to depend for their living upon the volume of sales, generally of articles which ordinarily are difficult to dispose of. While this is not so much necessary in the case of the necessary lines which many trades have to sell, the fact remains that people will frequent the store which makes them feel at home, and they cannot feel at home in a store which is poorly equipped from the standpoints of sanitary, heating and ventilating equipment. Here lies a real chance for effective sales talk.

Heating Engineers Busy in Fall: Now is Time to Have Equipment Put in Order

Many Homes are Prospects for an Extra Radiator or for Having Valves Repacked at This Time of Year—Less Expense by Equalizing Labor Throughout the Year a big Talking Point—Some Radiators Possibly do not Heat

Eggett & Co.

Plumbing
Decorative plumbing and
all city installations

Hot Water
Install for it in houses and
business

Steam Heating
Describe the best through
the house

Eggett & Company
507 RIDGIST ST.
PHONE 250

PADDON CO LIMITED
FIX IT FOR YOU

441 Sandwick St. E.
WILFRED
WILFRED

PLUMBING, HEATING,
SHEET METAL WORK
WE FIX IT

Make Your Home Comfortable and Sanitary

Are you enjoying "all the comforts of a home"? You are not unless a modern sanitary bath room equipment is installed. It is trifling compared with the satisfaction and convenience it affords you.

All estimate from us places you under no obligation to buy.

Greenaway & Elliott
Consulting Engineers
Phone 16 day or night

IN HOT WATER!

It is probable, uncomfortable or at least inconvenient to be in hot water these warm days. But what we wish to draw your attention to is, will you be in real hot water when you need it? Right now is the time to have our expert heating men look over your hot water or steam heating system and put it in order. Heating men are always busy at the fall of the year and you are apt to not have the good service available right now.

Have us look over the matter of hot water radiator you would like to have installed and we will guarantee you satisfaction.

MINNES
9 King St.—Plumbing Heating Electric—Phone 301

HAVE Your Plumbing and Furnace Repairs Attended to Now!

"THE STORM" "Good Cheer"

Has No Discomforts For Those Who Own

Warm Air Furnaces
PIPES OR PIPELESS

The old make of furnace equipped with the **BIG CIRCLE WATERPAN**

Absolutely the best value for the money of any furnace made. Durable, efficient and thoroughly depend upon weight and scientific construction and Good Cheer furnaces are on hand.

O. J. MUNTZ
PLUMBING AND HEATING CONTRACTOR

300 DUNDAS ST. PHONE 601W

Make Your Bathroom Distinctive

Bathrooms that are ordinary can, with the aid of a few small bathroom fittings, be made distinctive and expressive of the good taste of the housewife.

Your bathroom equipped with our towel bars, sponge holders, tooth brush holders, tumbler holders, plate glass mirrors, white enamel cabinets, nickel-plated electric brackets, etc., will add wonderfully to the appearance, as well as to your comfort.

A good display of these fixtures may be seen in our showroom.

Hot water in your bathroom heated electrically the scientific way, Thermo-Electric Water Heating Devices the universal choice. This improved heater may be seen in our window in actual operation all the week.

COWANS
THE FITTING HEADQUARTERS
BOTH PHONES 318

SPRING Clearance Sale of Stoves and Ranges

Every stove and line of ranges and ranges will be offered at greatly reduced prices during this sale. It is now the season to get the best heating or cooking stove at a wonderfully reduced price.

COMBINATIONS for gas, coal, and wood, save in choice from.

COOK STOVES for coal and wood in steel and reduced price.

SPECIAL LIGHTER DAY HIGH OVEN RANGES—just the thing for the farmer.

QUEBEC HEATERS coal, kerosene, wood stoves

A SPECIAL HEATING PLAN OF OVER TWENTY-ONE LINES OF ALUMINUM, BRASS, AND IRON, WARE

F. C. KULOW
Plumbing Heating Tinsmithing
Phone 21

Make light of heavy work

We don't claim to make washing such a pleasure as it is to take the place of a clothes wringer. But we do claim to make you wash with a smile. The best way to wash is to use the **ROVAL** wringer.

Installed in your home and you will find it a most useful and convenient device. It is a most useful and convenient device. It is a most useful and convenient device.

ROSS BELYEA
1375 BATHURST ST.

EXTRA HEAT OR HEAT YOU ARE NOT GETTING

Possibly there is one or two Radiators that do not heat up. Have our Plumbing Department examine them and see where the fault is. You may desire more hot water from your Range Boiler. Let us connect it to your furnace with a large Domestic Heater. See our selection of Electric Stoves, Gas Stoves, Mantles and Electric Lamps.

The new samples of Wall Papers will be here next week. Have your rooms papered before the rush.

McKelvey & Birch, Limited

PHONE 215
For Quick and Expert Service

HEATING, PLUMBING, REPAIRING, ETC.

THE COWAN PLUMBING, HEATING, ETC. CO.

1375 BATHURST ST.

Group of ads by plumbing and heating engineers showing the extent to which heating equipment can be advertised effectively at this time of year.

VARIOUS heating equipment lends itself well to featuring in the ads. of plumbing and heating concerns and a number of samples of such advertising from papers throughout Canada as shown herewith, gives some idea of the extent to which heating equipment is being advertised.

H. T. Gagnon, North Bay, Ont., advertises that he makes a specialty of heating and ventilation on large and small buildings, and is able to handle large contracts. He will furnish heating plans and estimates and lays out all his work personally. He absolutely guarantees all his work, and claims to give 100 per cent. value. Using an illustration of a radiator his ad. points out that he gives quick and expert service on heating, ventilation, plumbing, metallic ceilings, roofings and sidings, pumping outfits, heating outfits.

Gas Water Heaters

The ad. by Ross Belyea, Toronto, deals with gas water heaters stating: "We don't claim to make washing such a

pleasure that it will take the place of bridge or whist, but we do claim the job is a lot easier when you have all the hot water you need right in the tub faucet. Our heater installed in your home will put an end to most of that wash-day drudgery. No fires to build, no kettles to lug. No hot water accidents. And the nice part about it is that this convenient way is least expensive. Have a — automatic installed to-morrow and meet next Monday with a smile. Get our prices."

F. C. Kulow, Port Colborne, Ont., advertises a spring clearance sale of a complete line of stoves and ranges.

Radiator Doesn't Heat

McKelvey & Birch, Ltd., Kingston, Ont., have a somewhat unusual heating ad. entitled, "Extra heat or heat you are not getting." It states: "Possibly there is one or two radiators that do not heat up. Have our Plumbing Department examine them and see where the fault is. You may desire more

hot water from your range boiler. Let us connect it to your furnace with a domestic heater."

Cowan's, Brantford, Ont., have an ad. entitled, "Make your bathroom distinctive." This ad. illustrating a bathroom and an electric water heater, states: "Bathrooms that are ordinary can, with the aid of a few small fittings, be made distinctive and expressive of the good taste of the housewife.

"Your bathroom equipped with our towel bars, sponge holders, tooth brush holders, tumbler holders, plate glass mirrors, white enamel cabinets, etc., will add wonderfully to the appearance as well as to your comfort.

"Hot water in your bathroom, heated electrically the scientific way. Thermo-electric water heating devices may be seen in our window in actual operation."

Under the heading "Make your home comfortable and sanitary," Greenaway & Elliott, Bowmanville, Ont., state: "Are you enjoying all the comforts of a home? You are not unless a modern sanitary bath room equipment is included. Don't be afraid of the cost, it is trifling compared with the satisfaction and convenience it affords you."

T. J. Minnes, Brantford, Ont., has an ad. which reads: "In Hot Water! It is probably unseasonable or at least uncomfortable to be in hot water these warm days BUT what we wish to draw your attention to is, will your hot water heating system be in readiness when you need hot water this coming fall and winter? Right now is the time to have our expert heating men look over your hot water or steam heating system and put it in order. Heating men are always busy in the fall of the year and you are apt to not have the good service available right now.

"Have us look into the matter of that extra radiator you would like to have installed. Have the valves on your radiators repacked and prevent extra expense and inconvenience next winter. Have us lay out a hot water or steam heating system for you now."

The ad. by Eggett & Co., London, Ont., illustrates effectively the use of hot water at the kitchen sink and bathroom, pointing out that steam heating equalizes the heat throughout the home. The ad. by Paddon Co., Ltd., Windsor, illustrates a water heater on the kitchen range boiler and other kitchen fittings.

Team Work of Plumbers and Gas Company in Selling Gas Water Heaters

Suggested Solution to Aggravated Situation Respecting Competition in Sale of Gas Water Heaters in Montreal Lies in Experience of Another City

THE age-old controversy over the competition of gas companies with plumbers in the sale of gas water heaters has developed a somewhat new angle in Montreal, where recent developments along this line have been such as to make it practically impossible for plumbers to compete with the Montreal Light, Heat & Power Co.

Sanitary Engineer understands that the Eriez Stove & Mfg. Co., Montreal, makes, among its various lines, the "Lion" gas water heater. Practically the entire output of the factory is understood to be sold to the Montreal Light, Heat & Power Co., and at such a price as enables installation complete at \$20.00.

In view of the fact that the price to the plumber on this or similar heaters is from \$13 to \$14, it is quite apparent that the plumber would have difficulty in doing a profitable business in gas water heaters when he has to meet the local competition at a price of \$20. It is generally estimated that galvanized and gas pipe, fittings, labor and margin of profit run the cost of installation alone anywhere from \$12 to \$15, so the plumber would have to get approximately \$28 for the job installed to make it worth his while.

Aggravated in Montreal

Analysis of the situation existing throughout Canada would seem to indicate that the situation is much more aggravated in Montreal than elsewhere. In Toronto, for instance, the Consumers Gas Co. make a charge of \$27.50 installed, for a similar type of water heater.

The best solution of the question would seem to lie in bringing the gas companies to a realization that they are doing themselves harm by the policy they follow. They do themselves harm from two standpoints, viz., they lose the support of the plumbers in furthering the sale of gas appliances and thereby selling a less volume of gas than is possible, and, secondly, they lose money themselves because there is no necessity of their having to make installations of gas water heaters at such a ridiculously low price. Unfortunately the plumber has not been able to compete with such concerns because of the fact that certain gas companies or other local

utilities have been satisfied to sell the appliances at practically wholesale prices and then charge up their own selling expense and installation costs as a part of the general overhead of business.

The folly of this latter plan was amply demonstrated at the last meeting of the American Gas Association, when two new sub-divisions were appointed to work with the plumbing and heating dealers for the furtherance of gas appliance sales. Educational work has revealed to the gas companies that they have failed to properly embrace the opportunities presented through the potential selling efforts of the thousands of plumbing dealers throughout the country and the fact that a large proportion of these dealers are now genuine merchants rather than master mechanics. That the American Gas Association has given prompt and cordial acceptance to the proposals of the representatives of the plumbing industry is evidenced by the creation of the new committees to iron out their differences.

What One City Did

Going more into specific detail we will outline briefly what F. A. Woodhead, manager Arlington Gas Co., has to say about the way a similar local situation was overcome. The idea was conceived in the spring of 1921 that the Arlington territory contained plumbers whose co-operation would result in mutual benefit to the gas company and the plumber. Meetings were held and nice dinners were enjoyed at the expense of the gas company. Plans were made for both sides to assist each other in the selling of gas appliances. After the first six months the idea was not as successful as it might have been because it was not to be expected that a gas company could expect, after years of monopolizing the gas appliance business, to say, "Boys, we will now be good and because our prices are higher we want you to help us to get more gas appliance business," and expect the plumbers to bite. No sir-ee, it didn't work. So a new plan was proceeded with, involving some horse-sense.

We decided that many people take the advice of plumbers on the question of water heating, so we had further gather-

ings to tell them all we could about water heating so they would know the best kind of water heater for their customers. Some gas men might say, "Too much bother and worry" or "It can't be done," but we stuck and won out. To-day we have twenty-eight of the best plumbers in our territory pulling with us and they have signified their intention to abide by a gentlemen's agreement existing between us as follows:

The Agreement

Whereas it is clearly understood by the plumbers that it is necessary that gas water heaters be sold and installed on the gas company's lines to promote the sale of gas; and

Whereas, it is understood that in order to promote the sale of gas, through these appliances it became necessary for the gas company to undertake the installation of these appliances, which they are now doing; and

Whereas, it is understood that the plumbers are desirous of acquiring the business of selling and installing these appliances and represent that they will push the sale of said appliances; and

Whereas, the gas company is willing to turn over the selling and installing of these appliances to the plumbers as fast as the plumbers show they are capable of selling and installing them in volume and proper manner, to warrant the gas company so doing. Now, therefore, the parties hereto agree as follows:

That they will immediately start a co-operating plan for the selling and installing of these appliances, which will have for its object the promoting of the sale and installing of gas water heaters and accessories thereto. The co-operating plan to be along the following lines:

A committee shall be appointed, having a proper representation from the gas company and a proper representation from the master plumbers. This committee to work out the details of operation of the co-operating plan.

It is understood and agreed that the committee shall have the power and right to make all necessary arrangements for the carrying out of this co-operating plan and all questions arising shall be decided by the committee and their decision shall be final.

The gas company to stock water heaters and accessories subject to the approval of the committee.

The committee will be asked to help select the type, size and quantity of heaters to be stocked by the gas company.

The gas company to furnish the plumbers with heaters, subject to the approval of the committee, delivered as follows:

The heaters which have been approved and carried in stock by the gas company, which are bought from the gas company by the plumber, shall be subject to the customary jobbers'

discounts on the various types. Maximum discount to be governed by the committee. Heaters to be delivered f.o.b. job by gas company. The gas company to advertise, exhibit and demonstrate heaters to the public. The gas company is to ascertain, as far as possible, if the customer prefers a plumber to make the installation and, if so, who.

When connections are made by the plumber, he bills directly for the work to the customer. The plumber has the privilege of carrying on the whole transaction, making the sale and complete installation.

Unless the gas company has been notified that the plumber has sent his customer, and the gas company makes the sale and installation, it would be made without compensation to the plumber unless he could prove to the committee that he had worked on that prospect, in which case he would receive 5 per cent. Should the gas company be advised that the plumber is sending his customer, the sale would be made on a basis of 5 per cent. to the plumber, except it be definitely understood that the plumber has practically made the sale and the customer simply wants to see the size and type of heater in operation.

The plumbers agree to co-operate with the gas company by recommending the same size and type of heater as recommended by the joint committee.

Installations made by plumbers signing this agreement, which prove faulty and unsatisfactory to the gas company's inspector, shall be changed, according to the gas company's instructions, by the plumber at his own expense. Reports of such wrong installation shall be made to the committee.

The gas company shall maintain a water heater and service department. This department shall continue to connect, disconnect and re-connect heaters in accordance with this agreement.

The gas company agrees to furnish the plumbers with special information on water heating and the plumbers agree that they will confer with the gas company on various projects for different methods necessary to make a proper installation.

This agreement to exist until it becomes unsatisfactory to either party.

As a result of this agreement, we have twenty-eight boosters in our territory where formerly they were "agin" us. In addition to that, our customers will benefit by having better and more satisfactory installations.

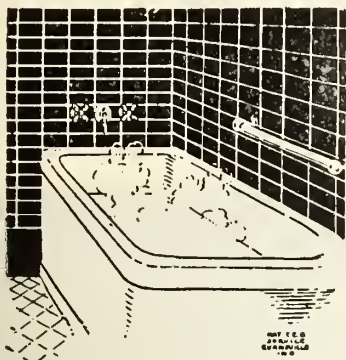
There are three splendid results to be achieved by this plan of co-operating with the plumbers as follows:

1. Better public relations.
2. Increased jobbing sales and gas sales for the company.
3. Increased jobbing sales for the plumbers.



How ranges, range boilers, water heaters, showers, etc., may all be linked up in one display which drives home the advantages of modern plumbing and heating equipment in the home is well demonstrated in this group of windows arranged by Standard Plumbing and Heating Co., Winnipeg. This particular picture was taken about Christmas time, but displays on the same plan are kept constantly on view, linking up both departments of the business.

Ads. for Heating Plants and Equipment



A Warm Bath

for every member of the family — even if they bathe in one-two-three order.

That's what modern hot water service is—an inexhaustible, instant supply of all the hot water you need, for every household purpose.

Visit our store for particulars.

YOUR NAME HERE
Phone No. Address

The Barber's Trade

Expects hot water. His patronage would soon dwindle away if he did not have it.

A (name here) Automatic Gas water heater gives unlimited, reliable hot water. It runs itself and costs but a few cents a day to operate.

Our terms are convenient.

YOUR NAME HERE
Phone No. Address

HOW TO ORDER

advertising material

Advertisements in each issue will form a complete month to month advertising campaign for your use.

These are only a few of the electros available in this service. Complete catalog of all illustrations available to date will be mailed on request.

The catalog gives serial numbers on each illustration and the price is quoted. Prices range from 30 cents to \$1.00 for electros according to size.

In ordering from catalog write plainly the serial number of the illustration and send remittance to cover the order in order to save cost by avoiding book-keeping expense.

By Courtesy National Trade Extension Bureau.

Warmth Protects Health



Even, temperate warmth throughout the house—from a dependable heating plant—will protect your family against colds and other sickness. Modern heating prevents chilling of one room and overheating another. That's only one great advantage of it. There are many others.

Warmth from one of our heating plants is economical—requires less fuel and less attention. It can be easily regulated with fewer trips to the basement.

YOUR NAME HERE
Phone No. Address.



For Frequent Bathing

the shower is hygienic—healthful for every member of the family.

A modern bathroom offers complete comfort and convenience by including a shower with hot and cold water connections. We install them—built-in or quickly detachable—at a moderate cost.

We offer wide choice—all good ones.

YOUR NAME HERE
Phone No. Address

Winter is Not Here

but it will be here in another few months. That heating system of yours perhaps gave you some trouble last winter. It was a long, hard winter—a big strain on the heating plant.

Before the Fall rush starts you can have your heating plant gone over thoroughly by our engineers and put in the best condition.

The cost of fuel makes heat loss expensive.

YOUR NAME HERE
Phone No. Address

Plumber Finds Women Are Prime Movers in Sales of Plumbing and Heating Goods

Plumbing Specialties Induce Many to Enter the Showroom Who Become Prospects for Other Equipment—Encouraging Young People to Have Pride in Appearance of Their Bathrooms—Dark Materials as Background for Displays



Bathroom specialties displayed effectively on a background of black material, bring many prospects into the splendid plumbing showroom of T. J. Minnes, Brantford, Ont. Those induced to enter the showroom by this means are frequently developed into good customers for other requirements.

THAT there is an all year round business to be carried on in bathroom fixtures, at a nice profit, is the opinion of T. J. Minnes of Brantford, ex-president of the Ontario Society of Sanitary and Heating Engineers. The very best method of going after this trade he says is by means of window displays and with this end in view he arranges a showing of bathroom fixtures at regular intervals. At all times they are kept prominently displayed in his store. As a result of going after the trade in fixtures systematically he has trebled and quadrupled his turnover and demonstrated beyond any question of doubt that the business is to be had if the men in the trade will go after it.

Who Buys Them?

Who are the big buyers of bathroom fixtures? Mr. Minnes sales would indicate that practically everyone is a prospect. Home owners of course are especially interested. Those who are building new homes are equally as good prospects. But Mr. Minnes finds that he is selling fixtures at all seasons of the year and not always to home owners or builders. Very often a young man or woman will come in and ask for and buy a soap dish or a towel bar, a mirror or some other piece that has been on display. This happens not infrequently and

indicates that the younger members of the family take pride in the bathroom in their home and want to do their share of providing nice equipment for it. Not a few of these young people return from time to time and buy various other fixtures until they have everything complete.

Women Good Buyers

Mr. Minnes finds that a very large percentage of his stock of bathroom fixtures is sold to women. Quite often they are the housewives who are getting a complete set of fixtures for the bathroom as quickly as they can. Some of the women buy a whole outfit, but more often they buy one piece at a time until they have all.

Another big percentage of bathroom fixtures is sold to those building new homes. Mr. Minnes finds that it pays well to talk and show bathroom fixtures to every home builder.

Are Always Interested

"They are always interested," said Mr. Minnes. "Anything that is going to be of real service in the home and has a large utility value as well carries interest to the men and women who are building new homes. One has two big talking points right there and then there is a third that is not less important and that

is the reasonable price and the long and constant service the fixture will give."

Keeping the fixtures looking their best and out where people can see them all the time is the best way to keep them moving, Mr. Minnes says. One cannot be too careful about keeping one's stock presentable, especially when many of the customers are women. Many women have a dread of going into a plumber's shop that is induced by their having at some time or other seen quantities of dusty merchandise around. They are really interested and would like to go in and inspect the stock but hesitate to, fearing they will come out all over dust.

Will Tell Others

Once they find a store where they know they need have no scruples about entering, they not only come themselves but tell other women and much good business is the result.

Women, Mr. Minnes believes, are the prime movers of most sales in plumbing equipment and of labor saving devices for the home. They know what they want and sooner or later plan to equip their homes as they would like to have them. This of course cannot always be done at once, but Mr. Minnes finds that women who are interested in improving their homes are real prospects not only for bathroom fixtures, but for improved plumbing and heating and also for the

long list of electrical labor saving devices which he handles. In his window and store displays he is always careful to keep an electrical washer, a vacuum sweeper or some other labor saver out where it can be seen and many sales are directly traceable to interest aroused in this way.

Lets Them Know

It is good business to use newspaper space, Mr. Minnes says, to let people know where they can obtain merchandise. Good window and store displays backed by snappy advertising are a hard combination to beat from a sales standpoint, he says. His newspaper messages not only bring in the home people but reach out for miles and interest people in the surrounding district who would never see his window displays or hear of his store. He finds that home owners all over the country are alike interested in anything that will make their homes better or help them save time in their work. In hundreds of country homes bathrooms and other conveniences are now installed and the owner of every one of these is a real prospect for bathroom fixtures and as Mr. Minnes says: "the business is there all right if one will go after it."

Shows Them Off

A point that might help other men in the trade in arranging displays of bathroom fixtures is that in dressing his win-

"ALL THEY COULD ASK—AND MORE"

Editor, *Sanitary Engineer*:—

"This is to express our appreciation and thanks for the most excellent article and cut of our show room which appeared in your issue of May 1. It is all we could ask and more.

"Your representative certainly went into detail very minutely and there was very little which he did not see. Already we have received a letter from a firm in Dayton, Ohio, complimenting us on the layout.

"Again thanking you and wishing your excellent paper every success in the future,"

A. R. WILSON, LIMITED,

Heating, Plumbing and Roofing,

Sherbrooke, Que.

dows Mr. Minnes is always careful to use some dark material. This makes a striking and very effective background against which the all white or shining nickel fixtures stand out and in many cases practically "sell themselves."

Some such inexpensive material as black or purple crepe, or cloth is very effective.

With such materials it is also an extremely small matter for the merchant to arrange steps, pyramids or other settings which will enable the maximum amount of merchandise to be shown to the best advantage.

Mr. Minnes finds the step arrange-

ment very simple and effective and points out that one can easily make wide or narrow steps as the merchandise demands, and as many or as few as one likes.

While he believes in showing as wide a variety of merchandise as possible, he believes it is not good business to overcrowd a window as it spoils the general effect and makes it look as if the merchandise was thrown in.

His windows are changed every few days and he has proved by his sales records that it pays and pays well to do this.



Interior showroom view of the plumbing, tinsmithing, steam and gasfitting business of Hamilton and Stott, St. Thomas, Ont., showing how various plumbing and heating equipment is demonstrated. A combination coal and gas range, and gas ranges are shown along with laundry tubs, closets, basins, etc. Note how smaller bathroom accessories are shown in glass-fronted wall cases placed at convenient height for customers to examine. These cases have sold considerable plumbing specialty lines and these sales have frequently led to installations of bigger equipment.

Increasing the Volume and Profit Margin on Various Sheet Metal Work

Outgoing Dollar Based on Average Sheet Metal Job is Made Up of 37 Cents for Merchandise, 32 Cents for Labor and 31 Cents for Overhead—Furnace and Sheet Metal Work About Same—Ventilating and Special Sheet Metal Work Varies Somewhat

(Written by a sheet metal worker)

THERE are some of us conducting tinshops who have made a living and a profit out of them. Why? Because we have asked for a profit and insisted on getting that profit which is rightfully ours.

There are some who have made a profit by applying a smaller margin of profit on cost than their competitor. They have really increased their volume of sales but they have taken their competitor's profit.

There are some that have made a profit not by taking business away from their competitor to increase their volume with a small margin of profit but by applying the time saved by not having the increased volume, to construction details, labor, merchandise and expense.

We all feel that we have mastered the problems of the business. Now as a reminder of the fundamental principles of our business let us first recall the day you started. Do you remember when you opened your ledger that Capital, your investment, was there? Do you remember when you walked through the office door, "Expense" slipped in with you—and insisted on being your partner?

The Surplus

Men, representing tools and equipment, material, labor, productive and non-productive, appeared—and you gave them all a place in your ledger and when everything was arranged in tip top shape you found that you had a little left over and not to forget you found a place in the ledger and called it "surplus."

Then on looking around you found that you had four assistants, namely Investment, Merchandise, Labor and Expense, to run the business for a profit to make that surplus grow. In checking up your records of the past you will find that the four items mentioned have played an important part in all of your transactions for a profit, with the exception of now and then when you juggled the margin of profit; not because you wanted to take a job away from a competitor but to stimulate business and to keep your organization working to have an income to balance your expense, also known as overhead.

This practice is good business, but don't practise it on all of your estimates and don't compare your business with manufacturing concerns who base their

selling price from year to year on past costs, overhead included, but not including profit, knowing that greater efficiency of production and a larger volume of sales would bring in the profit.

We may say that this can be done in the sheet metal business as well as in the manufacturing and merchandising business providing we can increase the

WOULD BE WORKING IN DARK WITHOUT "SANITARY ENGINEER."

"As a reader of Sanitary Engineer I must say that I find it a very valuable paper. I am interested in many of the items and letters and general information. I find your price list and those articles on septic tanks valuable information. I would not be without Sanitary Engineer. If I dropped reading it now I would feel like one working in the dark."

William D. Ryan,

St. John's, Newfoundland.

efficiency of our labor. We can't consider volume on this basis and be on the level with our competitor.

Only One Way

There is only one legitimate way of increasing our volume and not interfering with our competitor's profit, and that is:—

1. Promote the sheet metal industry by using good materials and good workmanship.

2. Redeem some of the lost lines of the trade, especially cornice work.

3. Promote new lines for the uses of sheet metal.

4. And don't forget that a warm air furnace, properly installed, is a most satisfactory heating system for a home.

But before you can make it so, you will have to increase your present selling price and then see to it that the wall stacks are properly placed; all connections and joints throughout the system, gas, dust and air tight; a real tight joint between the registers, sheet metal and plaster; a fire pot and dome with plenty of room for combustion; a well balanced system of supplies and return. This will mean volume and a greater profit.

On the other hand, let us see what could be done with labor. Take our labor of to-day and put it along side the labor of fifteen or eighteen years ago.

Remember the big day's work, the good workmanship the old boys were used to? You shall have the answer.

Remember the tools they used, and the ones we have to-day?

We still have the same firepot, same snips, same hammer, same rope and pulley, same tar kettle, the same brake.

The only difference is they used to take care of the tools years ago—they were cheaper then they are to-day.

The only thing we haven't got any more is the old horse; in his place we have a flivver, increasing our efficiency in making the rounds to our jobs to see how little is being accomplished.

Now right here is where we can make a profit without reducing our competitor's profit.

But let us first make up the estimate.

First: We figure the quantity of the materials required, all as specified, and we set down merchandise at present market price, so much in dollars and cents.

Second: We estimate the labor required to the best of our judgment and past records of cost, and we set down, labor so much, in dollars and cents.

Third: Now that we have the labor it is quite easy to add the proper amount of expense based on our established overhead percentage and on the present expense budget, and we set down expense (or you can call it overhead), so much money. You can split this expense item and charge expense direct to job the same as merchandise and labor, and the balance as overhead; but the total should be the same in each case.

Now we have three items, the total of which will be the cost of the job.

But when we started the business, we had four items—investment, merchandise, labor and expense.

So far we have taken care of the last three items, merchandise, labor and expense.

The first item is the one that sets us in business and is yet to be considered, and we will therefore add a profit.

The amount or percentage is a question for you to decide. And so we set down, profit, so much money.

Now, we have taken care of all four

items and the total is our selling price.

After signing the contract we start in to take up the matter of details. Details of construction, merchandise, labor and expense, and whatever can be saved on the estimated cost is clear "velvet."

The best way to dispose of this "velvet" is to distribute same to the parties directly responsible for it, including labor, you putting your share in your pocket along with the others, and the profit will go to surplus.

This method of ignoring the velvet in relation to your cost will prevent you from using a too low cost in your next estimate, and you retain the chances for more velvet, as well as protecting your competitor who may not have the efficiency at his command that you have.

But by playing fair you will be able to get his volume of business which he should have, at a profit.

There are several points that I want to bring out strong. They are:

1. Size up your capacity when deciding on the volume of business that you want to handle.
2. Remember this roofing and sheet metal business is limited.
3. There is a point in every business

"A BIG HELP TO TRADE"

"I am very much interested in your articles concerning the building of septic tanks. The cuts and the explanations are a good help to the trade."

Alfred L. Wael, Maniwaki, Que.

when the maximum point of profitable return is reached.

Translate your business into terms of one dollar.

This will put life and speech into figures so that they can fulfill their true mission of telling you how your affairs are going.

There are one hundred cents in a dollar, and you should know exactly where every cent in every dollar of income went.

This will tell you at a glance how many pennies there are required to bring in a dollar.

It will tell you at a glance by comparing figures in connection with previous months or years, what items have cut into your profit, or what items have increased your profit.

Outgoing capital, or work in process, consists of the cost of merchandise, labor and expense and is charged directly to the contracts or jobs.

The overhead here represents 95 per cent. on labor.

These three items are the cost of the job and your outgoing dollars.

This outgoing dollar is based on the average roofing and sheet metal job and is made up of 37 cents for merchandise, 32 cents for labor and 31 cents for overhead.

Offhand, I would say that the furnace and general sheet metal business will stack up about the same.

I believe that ventilating and special sheet metal work will figure to 21 cents for merchandise, 45 cents labor and 34 cents overhead.

Anyone of you may have the correct figure by checking up your own records.

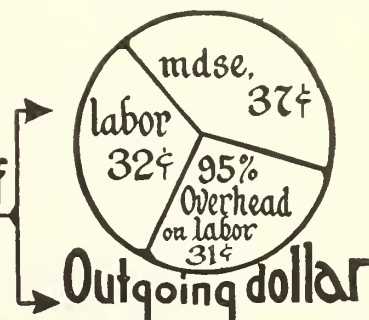
Here we have Expense as one item.

This item can be split up just as you see fit, and freight, if any; trucking; probably non-productive labor and other items that are not productive labor or productive merchandise, can be charged

(Continued on page 32)

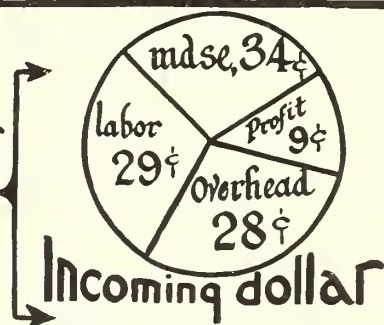
-1- "Outgoing Capital"

Cost	MDSE.	5655.23 - 37	In terms of a dollar.
	LABOR.	4840.63 - 32	
	95%EXPENSE.	4598.59 - 31	
	TOTAL COST.	15094.45 - 1.00	



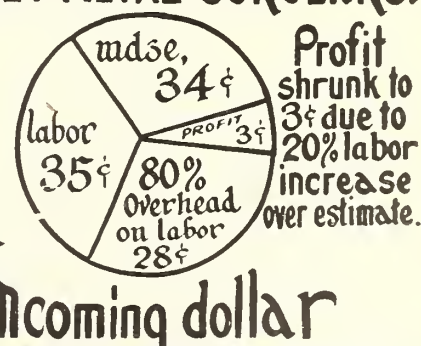
-2- "Sales Dollar"

In terms of a dollar	MDSE.	5655.23 - 34
	LABOR	4840.63 - 29
	95%EXPENSE.	4598.59 - 28
	10% PROFIT.	1509.44 - 09
	GROSS SALES.	16603.89 - 1.00



-3-AVERAGE INCOMING DOLLAR OF ROOFING & SHEET METAL CONCERNS.

In terms of a dollar	MDSE.	5655.23 - 34
	LABOR.	5808.75 - 35
	80%EXPENSE.	4598.59 - 28
	3 1/3% PROFIT.	541.32 - 03
	GROSS SALES.	16603.89 - 1.00



NOTE: TEMPORARY REDUCTION OF OVERHEAD PERCENTAGE DUE TO INCREASED LABOR RATE.

Steam, Vapor and Hot Water Heating

Simple Examples and Experiments—Methods of Making Connections—Why One Inch Pipe is Basis of All Heating Calculations in Arriving at Amount of Radiation Required

Written for Sanitary Engineer by EDWIN NEWSOME, Consulting Engineer
(Article No. 3 of Series)

IN A previous chapter reference was made to the size of pipe used as a basis on which to compute radiation. When, according to climatic conditions, the heat loss of a building is set at say 7 per cent. and a building contains 30,000 cubic feet of space to be heated, 300 times 7 would give us 2100, representing 2100 feet of one inch pipe. To find out the number of square feet of heating surface, divide 2100 by 3, which gives us 700, meaning 700 square feet of radiation.

Now let us analyze the reason, or one of the reasons why one inch pipe is used. First it is well to note the area of a one inch pipe, 36 inches long and the volume of steam or the quantity of hot water to fill such a length of one inch pipe.

The outside diameter of one inch pipe is 1.315; the circumference 4.133 inches. Then 36 inches would be equal to a piece of sheet iron about $148\frac{3}{4}$ square inches. One foot of heating surface contains 144 square inches.

Now, as to the carrying capacity of one inch pipe. The inside diameter is 1.049 inches, the inside area is 7854 square inches and 36 inches of one inch pipe would therefore hold 22.2744 cubic inches, by measure equal to about 17 fluid ounces. Let us now compare the above figures with a piece of two inch pipe.

The area of two inch pipe is 3.141 square inches. Outside circumference is 2.375. Therefore to procure one square foot of heating surface from two inch pipe a piece $19\frac{1}{4}$ inches long would be required, and $19\frac{1}{4}$ lineal inches of 2 inch pipe will hold 60.464 cubic inches, approximately $60\frac{1}{2}$ cubic inches of either steam or hot water. Therefore the reader will see at a glance that a great deal more steam would have to be

furnished to fill a piece of 2 inch pipe giving one square foot of radiation than a piece of 1-inch pipe giving the same amount of heating surface.

Old One Gave More Heat

It is strange, but nevertheless true, that the old one inch pipe coil gave off considerably more heat than many more recently designed radiators. At the same time, the box coils were and are dust collectors, unsanitary, cumbersome and not so reliable from the standpoint of durability.

The strides made of recent years with heating specialties, reflect great credit to inventors. Coal is giving a greater degree of service in B. t. u.'s as a result of these steam heating specialties. Hot water heating too has not been entirely left alone, though few heating engineers are there who take the interest they ought to in developing hot water heating.

The old gravity job holds sway, though not because of its perfections. It stands just in the same position as it did in the time of Sir Isaac Newton. A few "heat generators" have come and gone and it still remains for someone to invent a "foolproof" apparatus that will not finally lose its effectiveness. Every once in a while some one patents another fuel saver. But one strange thing about such apparatus is that the term "generator" is given to them, when as a matter of fact the boiler or furnace is the actual heat generator. The main trouble with "heat generators" patented of late, has been found to have been caused by the valves either becoming clogged or dirt getting under the spring valves or weights, thus making the "generators" of no value. Pressure caused by the water expanding has been permitted to escape.

The heating of buildings by steam is said to have been one of the first meth-

ods adopted and for many years no one attempted to install any but a two pipe system. Later someone evolved the idea that so long as the air could be forced out of a system of coils or radiators a one pipe system was all that could be desired. As a matter of fact, the two pipe system (badly installed) was the outcome of the one pipe jobs.

Two pipe installations fitted with impractical air vents, or with pipes connected up in such a way as resulted in water hammering; also creating conditions where the water would collect in the radiation, all brought about the need of some changes in steam heating systems. At the same time the using of a poorly designed steam radiator was the chief trouble.

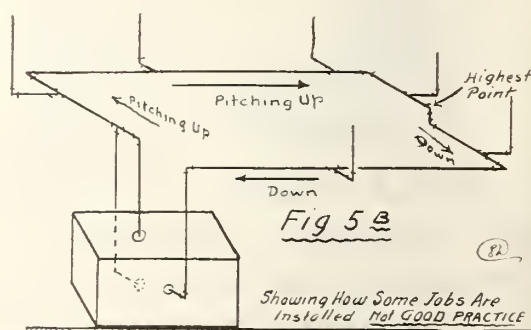
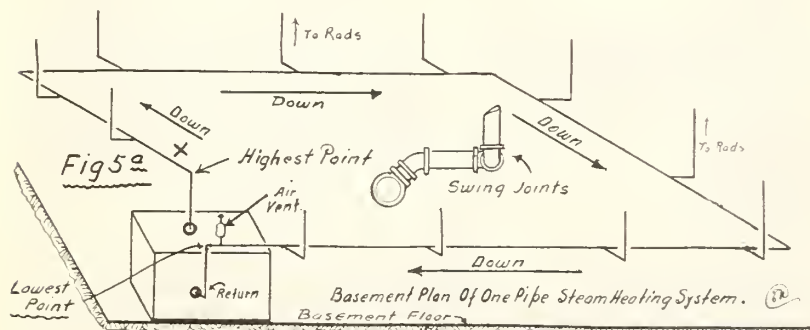
What is known as hot water radiation such as permit a connection being made as shown in Fig. 7 would no doubt eliminate 80 per cent. of the troubles experienced with the average two pipe steam system. And if our readers will watch closely all modern steam installations they will find that the connections at the radiators are made as in Fig. 7.

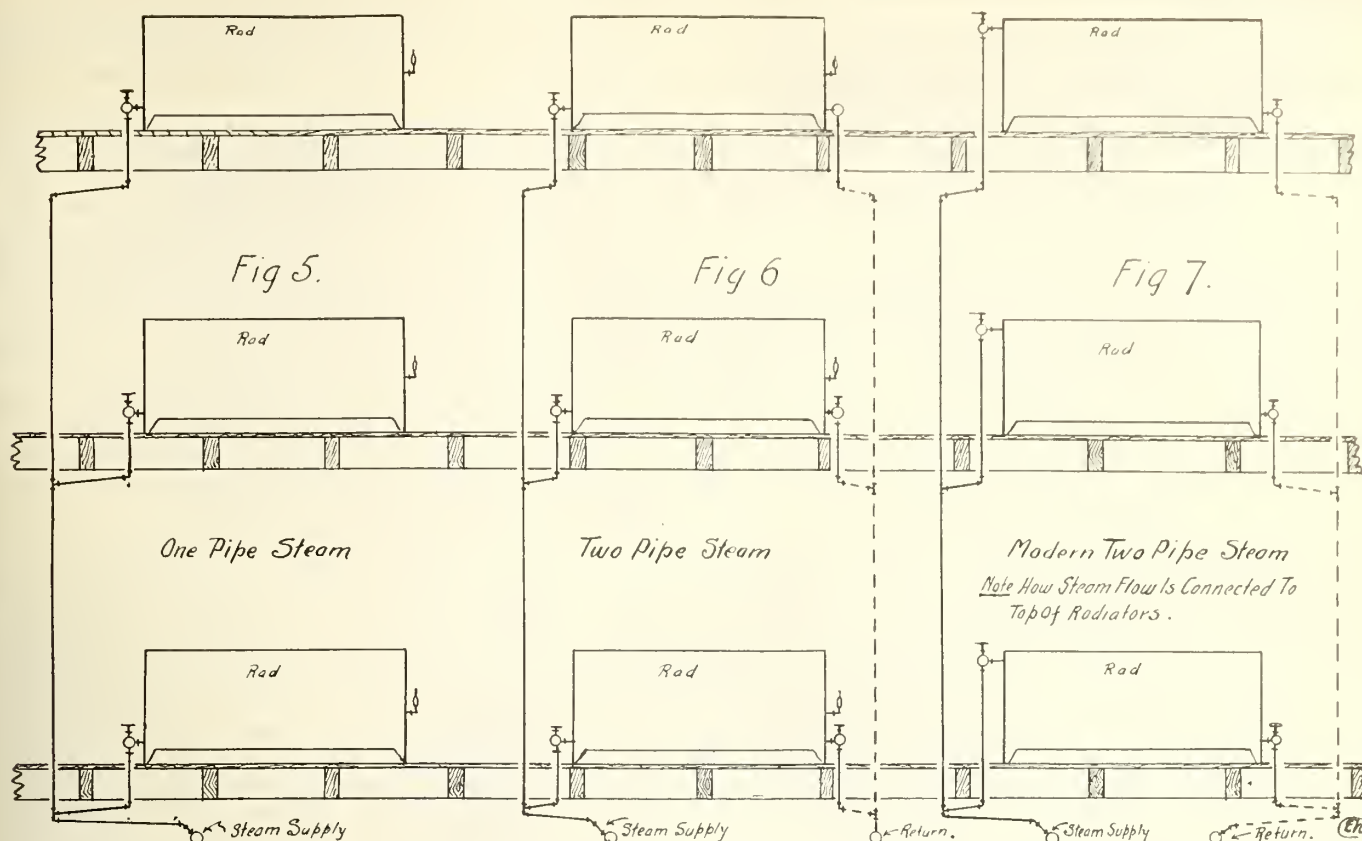
The same could almost be said of hot water radiation. The twin connection is largely impractical. Even the hot water heating specialty engineers almost invariably adopt the top and bottom connections and all forced hot water heaters are so connected.

Falls to Lowest Connection

The student in heating engineering should just give a little thought to the theory that no matter what medium be used for heating, steam or hot water, as soon as it cools, falls to the lowest connection.

For example turn to Fig. 5. This sketch shows the connections made in a common one pipe steam system. The





steam passed from the horizontal flow to one or more vertical risers and the condensate must return back and down the vertical pipe which also conveys the steam to the radiator.

Fig. 5-A shows a plan of steam mains from the top of the boiler to the vertical risers, and from point marked X the horizontal pipes pitch down. Note how the end is connected at the boiler. Fig. 5-B shows how some engineers have been known to connect the piping at the boiler. All with a view of lowering the price of the installation, at the cost of efficiency. One wonders how such jobs work at all, but strange to say many of them give fairly good satisfaction.

Fig. 6 shows the proper way to connect up radiators on a two pipe steam heating system. The radiator sections are connected top and bottom with either slip nipples or right and left threaded nipples. The steam enters the top and as the heat is radiated, the steam condenses and forms water beads on the inside of the radiators. The condensate also cools on its way down to the return pipe, thereby giving off all possible heat in both steam and the hot condensed water.

(To be continued)

WINNIPEG HEATING SYSTEM IS CIVIC ISSUE

Winnipeg.—Among the questions likely to figure prominently at the next civic election is that of a central heating system for the business section of the city, to be operated in conjunction with the hydro's standby plant. It has been

ONLY PAPER TO CARRY KENNEDY ADDRESS

Editor, Sanitary Engineer,
SANITARY ENGINEER,
Toronto.

I wish to congratulate you on the May 15 issue of your paper, because it contains such a splendid report of the Convention.

I was glad you reported an address by Mr. Kennedy, who spoke at the Ontario Convention. I found his address very interesting, and I am glad good old Sanitary Engineer reported it, because I have not seen it in any other paper.

Robert Thompson.

anticipated all along that the question would come up for discussion at an early date, and a foreshadowing of this was made by Alderman Heaps, chairman of the public utilities committee, at the latter's meeting.

The alderman stated that J. G. Glasco, manager of the hydro, was preparing for each member of council a digest of the voluminous Skinner report, made last year by W. E. Skinner, consulting engineer of Minneapolis, into the question of central heating in Winnipeg. The report recommends the inauguration of the system.

PLUMBING SUPPLIES BASEBALL LEAGUE

The Crane Co. Ball Club went into first place in the Plumbing Supplies League by virtue of their five-to-four victory over the Standard Sanitary team at Willowvale Park. Both pitchers were in good form, Patterson having eight strike-outs and allowing four hits and two walks, while Richards got nine victims, but walked four batters, which proved costly to him. The score:—

	R.H.E.
Standard Sanitary	2 0 0 0 1 1—4 4 2
Crane Co.	3 0 0 1 0 1—5 3 2

Batteries—Richards and Cooper; Patterson and Coulter.

Umpire—F. Hallinan.

PETERBORO HOUSES ARE BEING MODERNIZED AND PROVIDED WITH CONVENIENCES

Peterboro, Ont.—That Peterboro has more houses without sewer connection than any other city is the sweeping statement made by Plumbing Inspector A. G. Metherall.

Two years ago there were 1,350 dwelling houses in Peterboro without sanitary conveniences or sewer connections, whereas in Toronto at that time there were only 350 and in Winnipeg only 400. During last year there were 128 of these unsanitary houses modernized, and up to date this year 38 have had sewer connections installed. A determined effort is being made, the plumbing inspector said, to bring Peterboro up to the standard of other cities in this respect.

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Some New Blood

IT IS indeed unfortunate that there is little likelihood of a convention of the Canadian Society Domestic Sanitary and Heating Engineers being held this year. This convention was passed up last year and this therefore makes two years in succession when the sanitary and heating industry of Canada has failed to speak as a unit. It is true there are difficulties in the way of conducting a national convention in Canada. The long distances which representative delegates would have to travel make it well nigh impossible for national representation, but it will be a pity if the matter is allowed to drop entirely because some plan of operation could be decided upon which would enable the organization to function.

The solution of the matter would seem to be in the strengthening of local plumbing and heating organizations in the towns and cities throughout Canada, these to be represented as fully as possible at provincial gatherings. The question of how a national organization can be made to function could then be gone into. Perhaps such an organization would be better conducted merely by executive officers from the provincial organizations meeting together, expenses to be paid by the provincial bodies.

The lack of any unified leadership and inability for the plumbing and heating industry of Canada to speak with one voice on important national matters, is having its effect upon provincial organizations, and the only type of organization which seems to be thriving to any extent in this industry to-day is that found in the smaller towns and cities. A number of such organizations have sprung up to help improve trade conditions and now they find the need for broader representation in the provincial and national fields. Why can they not have it?

Some new blood among the officials of some of these organizations might go a long way to remedying the situation.

Drive Should Be Continued

THE Board of Health of Peterboro has ordered the owners of six local houses to have their property connected with the city sewerage system as soon as possible.

A good many orders of the same kind will be necessary, it is said, before Peterboro can pride herself upon being completely modernized so far as sanitary conveniences are concerned.

Plumbing Inspector Methers declares that Peterboro is much worse off in this respect than most other Canadian centres.

Two years ago there were as many as 1,350 houses in Peterboro without modern sanitary conveniences, whereas at the same time Toronto had only 300 and Winnipeg 400.

Last year some progress was made towards remedying the situation, for conveniences were installed in 128 houses, and so far this year 38 more dwellings have been connected with the sewer.

The drive should not stop until every house in Peterboro and every other such city where sewer facilities are possible, has been linked up to the system.

An easy method of paying for the work has been devised in many cases and in the interest of the community generally the Board of Health should insist upon these very necessary improvements being adopted wherever there is need of them.

Property owners who, after due notice, ignore the commands of the board should be checkmated by a declaration that their houses are unfit for habitation.

Public opinion will support the health authorities in any action of that kind they may be called upon to take.

A clean city in every respect should be the community aim, and there is no more essential step than to have the sewerage system as completely efficient as possible.

More Favorable to the Trade

THE changes brought about in connection with the tariff and taxation, as outlined in the amendments appearing elsewhere in this issue will have the effect of easing the load somewhat for all branches of trade. The decision to postpone the application of the new sales tax until January 1, 1924, will give more time for the trade to make preliminary adjustments, and the change will then come at a time when many firms are ending their financial years and when inventories are being taken in the ordinary course. With the new tax applied at midsummer, as was previously provided, and in view of the plan whereby rebate would be allowed to manufacturers for stock on hand, it was quite evident that many firms would have been put to a great deal of trouble to make a physical inventory at that time of year. The tax already causes enough upset in business without bringing on such a further burden in midsummer when staffs are generally reduced owing to holidays. The change will be much welcomed by the trade.

The decision to tax receipts in the form of postcards, form letters and ordinary letters from the date of the enactment of the Bill, will bring about a considerable change in the business policies of a number of plumbing firms who have been using this form of receipt since the Receipt Tax came into effect. While, generally speaking, the Budget as amended is not unfavorable to business interests as a whole, this is one of the minor points where a little forethought might have saved much confusion and expense to business concerns. It evidently was not figured that the use of postcards and letters as receipts would extend as far as it did when these forms were exempted from the sales tax. Special forms were printed by firms in various parts of the country for sale to business houses wishing to use this form of receipt, and now after considerable money has been invested in such forms, they are to come under the heading of receipts subject to taxation.

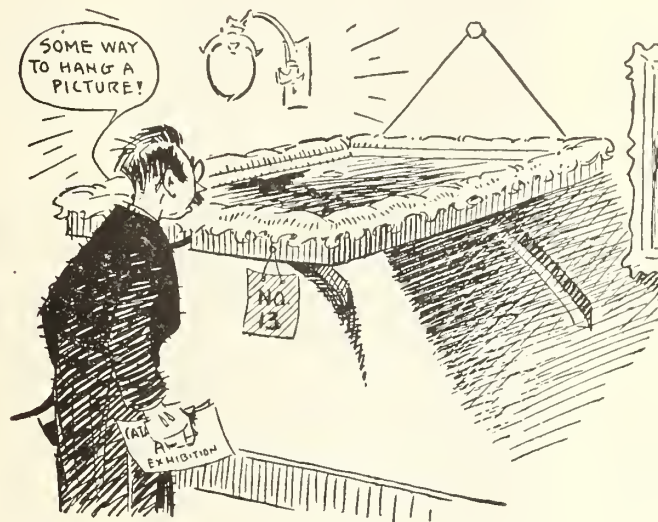
The postponement of the sales tax will delay for a few more months the revision in plumbing prices which a number of firms were already figuring on. It has also had the effect of cancelling many orders for July delivery which wholesalers and retailers had placed with manufacturers since the Budget announcement was made, this practice being followed in order to take advantage of the 2 1-4 per cent. tax compared with the higher tax of 6 per cent. which was to have become effective on August 1. Such merchandise will now be delivered in the usual way and ease the strain which was commencing to develop in a number of lines of plumbing manufacture.

MINUTE MESSAGE

Number Thirteen

Written for "Sanitary Engineer" by FRANK STOCKDALE

General Selling Series



Your Window is a Picture, Too

"Get 'em up! Get 'em up!"

Thus spoke a progressive plumber as he stood before his store window directing his window trimmer.

It was good advice that he gave in those three short words—"Get 'em up!" They carried real selling power behind them.

Your windows are bought and paid for as a part of your rent. To get this investment back and a profit as well, you must make your windows an attractive picture—one which is pleasing—one which is a welcome to your customer. Put the goods up where he can easily see them.

Put your "leaders" on a level with the eye and not too far away. A few articles well placed will be more effective than many articles poorly placed.

Notice the 5 and 10c stores. They buy the best locations they can secure and then use their windows to sell their goods. And—they "Get 'em up." This is proof of the value of window display properly arranged.

"On a level with the eye and upright" is a phrase which your window trimmer should carry with him constantly.

Have him preach it—have him practise it. Make your window earn more profits.

THINK IT OVER—APPLY IT TO YOUR BUSINESS

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Plumbing Trade in Canada

News Notes From Coast to Coast

Doings in the Plumbing and Heating Industry

NEW FIRMS

W. H. Murat has commenced a plumbing and tinsmithing business at Provost, Alta.

BUSINESS CHANGES

Weyburn, Sask.—J. C. Stewart announces that his plumbing and heating business is now in charge of George Kalman.

OPENS NEW SHOP

St. John, N. B.—G. W. Williams has opened a plumbing supply store on Main Street in St. John, near St. Luke's Church.

PLUMBERS FORM PARTNERSHIP

St. John, N. B.—Crawford and Hooper, have formed a partnership to conduct a plumbing and heating contracting business in St. John. A store and office combined has been opened on Union Street, St. John.

IN NEW PREMISES

Campbellton, N. B.—Alex. Damboise of Campbellton, plumbing and heating contractor, is now located in the McDonald Building in Campbellton. Besides his plumbing and heating business, Mr. Damboise is agent for Campbellton territory for the Gilson pipe and pipeless furnaces.

WELLAND PLUMBERS' DISPUTE SETTLED

Welland, Ont.—Welland master plumbers and the journeymen plumbers have settled their wage dispute. The men are to get 85 cents an hour, half the increase they asked. Last year's rate was 80 cents and the men asked 90 cents this year. The journeymen also asked time and a half for the first three hours overtime with double time after that, also double time for all holidays and traveling pay and expenses for out-of-town jobs.

IMPERIAL RADIATOR CO. PLANT IS BUSY

On the first visit to the plant of the Imperial Radiator Company in St. Catharines since the recent change by which this company takes over the premises formerly occupied by Steel & Radiation Ltd. Through the courtesy of General Manager E. T. Wingate and Plant Superintendent W. H. Davis, the representative of Sanitary Engineer made a complete inspection of the entire plant, viewing with much interest the various processes of manufacture and testing of boilers and radiators. This firm's activities indicate the expectation of a big

season. The whole plant is in full operation and the management have optimistic feelings concerning the future of this line of business in Canada.

OBITUARY

Robert F. Elliott, Elliott Bros., Kingston, Ont., is dead.

CANADIAN GAS ASSOCIATION

The annual convention of the Canadian Gas Association will be held August 23-24 in Ottawa.

CONTRACTS AWARDED

John Ritchie Ltd., Toronto, has plumbing and heating contract worth \$3,500 for York Township Municipal Hall.

RECOMMEND NEW SANITARY INSPECTOR

Oshawa.—The Board of Health passed a recommendation which will be forwarded to the Town Council asking that Alexander Kelman of Caledon, Ont., be appointed sanitary inspector to fill the position made vacant by the resignation of F. C. Palmer. The recommendation requested that his duties commence on June 1 at a salary of \$1,400 a year.

Dominion Radiator & Boiler Co. Formed

Dominion Radiator and Boiler Company, Ltd., is the name of the newly formed company organized to take over the Dominion Radiator Co., Ltd., Toronto, and the American Radiator Company of Canada Ltd., with factory in Brantford, Ont.

The new company's head office will be in Toronto. The entire assets and liabilities of the two former companies have been taken over by the new concern. Manufacturing plants are being operated at Toronto and Brantford and the new company will continue to produce Peerless and Safford radiation together with Ideal, Arco and Mogul heating boilers. Distributing warehouses are maintained at Halifax, Montreal, Toronto, Brantford, Windsor, Winnipeg, Calgary and Vancouver.

H. N. Leadbetter, formerly of the American Radiator Co., is president of the new company and is the Canadian Director in the combined organization. The directors of the former Dominion Radiator Co., while retaining stock interest, are retiring as directors, the directors of the American Radiator Co. directing the new concern.

WOODSTOCK PLUMBER RETIRES

Woodstock.—E. S. Coppins, who has been in business continuously in Woodstock for the past 33 years, has announced his intention of retiring from business. He is a plumbing, electrical and heating contractor.

MOVES TO NEW PREMISES

St. John, N. B.—Joseph Noble, who has had his St. John office on North Market street, is now located in more desirable quarters on Germain Street, in the Market Block. Mr. Noble, for many years maintained an office on King Square.

MAY ERECT COMFORT STATIONS

St. John, N. B.—The city of St. John may erect convenience stations containing toilets and urinals and wash rooms during the coming summer. St. John is one of the few cities of fifty thousand and over that are without convenience stations, or comfort stations as they are also designated.

INSPECTING PREMISES

St. John, N. B.—Chief George Blake of the St. John fire department, who is also one of the best known master plumbers in the maritime provinces, is now making his regular inspection of premises in the city with a view to eliminating fire hazards.

ISSUED THIRTY-ONE PLUMBING PERMITS

Peterboro, Ont.—Plumbing permits to the number of 31 were issued by A. G. Methers, City Plumbing Inspector, during the month of April. Inspections numbered 104, including 32 water tests; 19 smoke tests; 16 layouts and 37 miscellaneous tests.

The permits were for—19 water closets; 14 baths; 14 basins; 15 sinks; 2 laundry tubs and 2 soda fountains.

PURDY MANSELL CO. COMPLETE ST. CATHARINES CONTRACT

The new St. Catharines Collegiate Institute, recently completed on Catharine street, in that attractive city, is said to be one of the finest school buildings on the continent. The heating equipment represents a complete installation of Imperial Radiators, manufactured by the Imperial Radiator Co., St. Catharines, and installed by Purdy Mansell Co., Toronto. Upwards of 25,000 feet of radiators is installed in this building.

AMEND PLUMBING BY-LAW

Amendments to the present York township plumbing by-law were submitted to York Township Council by Acting Chief Inspector Beeston and approved. The clerk was instructed to prepare a by-law to cover same. Master plumbers present were in accord with suggestions presented by Mr. Beeston. In future township plumbing inspectors must qualify before an examining board. The clerk was instructed to advertise for inspectors at once.

SANITARY INSPECTOR LECTURES FARMERS

Fort William, Ont.—At the annual meeting of the Fort William District Municipal League held in Fort William and attended by over fifty farmers, A. J. Bolus, sanitary inspector for the city, gave a very interesting paper on rural sanitation giving a description of the method of installation and working of the septic tank system. Following the meeting several of the farmers met Mr. Bolus and requested more details. They told him they were greatly interested and wanted more knowledge with the idea in view of installing plumbing in their own farms.

PLUMBER'S INJURIES SUBJECT OF LEGAL ACTION

Judgment was reserved by Mr. Justice Smith, Toronto, in the action brought by the Board of Education and Robert Miller against the Monarch Brass Manufacturing Company for \$15,000. Miller, who was employed as a plumber's assistant by the board, was sent to the defendant's factory on February 6, 1922, to secure a siphon which had been left for repair. He went to the second floor and obtained the siphon, descended to the first floor and walked through a loading door which opens into space. He fell one story and suffered a fracture of both ankles and the right leg.

FORT WILLIAM PLUMBER GETS BIG CONTRACT

Fort William, Ont.—At Mount, ten miles west of Port Arthur, the Canadian National Railway is establishing a terminal yard and repair plant, that when completed will be one of the largest on the continent. There are to be several large bunkhouses, an engine house, machine shops, car repair sheds and a hundred and one other departments and into all these must go considerable plumbing and sanitary fixtures. The J. J. Culliton Co., of Fort William, has been notified that it has received the contract for this work. Forty fixtures are to be installed, in addition to the laying of miles of equipment. Most fixtures are specified in the contract. A septic tank with an Anthes syphon trap and a sub-surface absorption area will be installed for the disposal of sewage. This job amounts to several thousands of dollars.

**A. C. Leslie & Co.
Honor W. S. Leslie**

MONTREAL.—A very pleasant evening was spent at the Mount Royal Hotel, Montreal, when the sales staff of A. C. Leslie & Co. Limited were entertained at an informal banquet in honour of their president, W. S. Leslie, who has returned from a four months' business trip to Great Britain and the continent. The chair was taken by Thos. H. Jordon, vice-president, supported by Geo. B.



W. S. LESLIE,

President A. C. Leslie & Co., Ltd., Montreal, who was honored at a banquet by the staff of the company on his return from business trip abroad.

Ball, manager of the Toronto office. After doing full justice to the many good things provided and the toast to the King had been duly honoured, the chairman referred to the pleasure experienced by all on the return of Mr. Leslie, and the manner in which the toast to his health was received by those present testified to the esteem and respect in which Mr. Leslie is held by the whole staff. In acknowledging this reception Mr. Leslie referred to the pleasure which he and his family experienced on returning home despite a very pleasant visit to the other side. Mr. Leslie then gave a very interesting account of his trip which covered all parts of England and Scotland and his remarks were not only interesting but very helpful and illustrative from the point of view of those connected with the iron and steel trade. (An interview with Mr. Leslie appears elsewhere in this issue giving his views on conditions in the old land.) Addresses were also given by F. B. Leslie on present conditions in the U. S. A., E. H. Copland, secretary of the company, and others. Music and other entertaining features

contributed to the enjoyment of the evening and the proceedings terminated with a hearty vote of thanks to the committee in charge of the affair.

TENDERS FOR LAVATORY

Sealed tenders will be received by C. H. Acton Bond, 4 Wellington St., E., Toronto, until noon, Monday, June 12th, 1923. One-story lavatory at Queenston Heights Park, 25 x 64. Bulk tenders will be received for all trades, or bulk tenders for masonry, carpentry and plastering, and separate tenders for painting, tinsmithing, plumbing and electric wiring.

KAMLOOPS PLUMBING AND HEATING CO. TO DO CEMENT CURB AND GUTTER

Kamloops, B. C.—A special meeting of the city council was called as a result of which the contract for the cement curb and gutter on both sides of Victoria Street, between Third and Fourth Avenues, was let to the Kamloops Plumbing and Heating Company at the figure of \$880. There was only one other tender, that of Johnstone & Co., the amount of which was \$1,156.

Following up his protest against this work being done, when "certain cesspits all over the city were over-flowing," Ald. Gleave dissented from the action taken, declaring again that as long as necessary sewer extensions were imperative, such a "luxury" as this cement work could well wait.

CANADIAN SOCIETY CONVENTION STILL HANGS FIRE

Montreal.—The question as to whether the Canadian Society of Domestic Heating and Sanitary Engineers will hold a convention this year or not, still hangs fire but as was intimated in the last issue of Sanitary Engineer the likelihood that a convention will be held is very slight.

Following the scant response received by Secretary D. K. Trotter to his questionnaires sent out to all provincial organizations, the sub-committee decided to meet in this city on May 17 to finally dispose of the matter. For various reasons it was found necessary to postpone this meeting until Thursday, May 31, results of this latter conference not being available at the time of going to press.

However, from expressions of opinions received from members of the sub-committee the action to be taken is fairly certain. Montreal officials do not feel it fair either to them or to the association at large to go to the expense and trouble of holding a convention if it is to be merely a local affair and not truly representative of the national scope of the Canadian Society of Domestic Heating and Sanitary Engineers.

If it is decided not to hold the convention, which had previously been tentatively fixed for this city early in June, this will be the second consecutive year that the society has not met in general convention.

WALKERTON CONSIDERING CENTRAL HEATING PLANT

Walkerton, Ont.—The property committee of Walkerton town council are considering the installing of a central heating plant for the county buildings. At present six boilers have to be used with hard coal, whereas by the central system one boiler, using soft coal, would answer the purpose. They are asking for tenders on the job.

WESTERN ONTARIO NEWS

Battler and Frieburger of Kitchener, Ont., expect to be located in their new building in a few weeks.

Bowman Bros. of St. Catharines, Ont., have contract for new plumbing in large home being remodelled for G. J. Inksater.

Noble and Rich, London, Ont., have been awarded a contract for heating and plumbing for new \$10,000 home for Bert Weir.

J. W. Peart of St. Catharines, Ont., has been awarded the plumbing and heating contracts for library building at Merritton, Ont.

George Russell of Mount Forest, Ont., has moved to new and larger quarters in the premises formerly occupied by the Representative.

William Skelly of London, Ont., has been awarded plumbing and heating contracts for new \$75,000 warehouse for the Fireproof Warehousing Co.

Dr. Clifton Pennicott, 430 Hamilton Road, London, Ont., wants prices on hot water heating, plumbing and electrical work for new \$10,000 dwelling.

Brooks and Graham of Fergus, Ont., have been awarded the heating, plumbing and tinsmithing contracts for new parsonage to be erected by the Methodist congregation.

Lloyd Holland, 404 Hamilton Road, London, Ont., want prices on hot water heating, plumbing and electrical work for block of stores and apartments to cost \$20,000.

Architect W. G. Murray, Dominion Savings Building, London, Ont., wants prices on hot water heating, plumbing and electrical work for new \$20,000 home to be erected for R. H. Dowler.

Architect W. Stuart Pavey, Standard Bank Bldg., London, Ont., is preparing plans for two residence to cost \$15,000 for E. C. Warren, 20 Somerville Gardens, Toronto. Prices will be wanted on hot water heating, plumbing and electrical equipment.

REVISED BUDGET

(Continued from page 13)

cheques \$1.00 instead of \$2.00 as formerly. This is to be put into effect from the date when the bill is assented to.

Another important amendment of interest to the sanitary and heating industry is that dealing with deductions to be allowed on account of sales tax in certain cases, as follows:

Deduction of Sales Tax

"A deduction on account of the sales tax may be granted in respect to goods sold at a price fixed by bona fide contract of sale made before May 12, 1923, and still in force at the time of delivery of the goods; provided that such deduction shall not exceed the difference between the amount of the sales tax calculated at the rate in force on May 11th, 1923, and the amount of the sales tax paid or to be payable under these provisions and that no such deduction shall be made in respect of goods delivered after March 31, 1924, and claims for such deduction must be presented to the Department of Customs with complete evidence on or before June 30, 1924, otherwise same will be rejected."

The item concerning well-drilling machinery, which has been put on the free list, is as follows:

Well-drilling machinery and apparatus, and parts thereof, of a class or kind not made in Canada, drawn or seamless iron or steel tubing over four inches in diameter, for drilling for water, natural gas and oil, and for prospecting for minerals, not to include motive power.

Coal on Free List

Coal, anthracite and lignite; anthracite and lignite dust; coke, are now on the free list.

Emery wheels, carborundum wheels and stones, manufacturers of emery or of carborundum are charged duty as follows: Br. Pref., 17½%, Intermediate, 22½%, General, 25%. Carborundum wheels or stones not further manufactured than moulded and burned, Br. Pref. 10%, Intermediate, 12½%, General, 15%.

INCREASING THE VOLUME

(Continued from page 25)

directly to the different jobs under Miscellaneous Expense to jobs.

And the balance of the overhead can be charged as shown here. But inasmuch as the cost of the job will be the same, it will be less work to charge the expense in one lump sum, based on your

percentage of overhead on your productive payroll or on the hour basis as you wish.

The monthly distribution of the expense should be charged in proper proportion to finished work, or cost of sales, and to work in process.

The monthly distribution of your expense to the individual jobs while in process is misleading.

That is, if it is done for the purpose of estimating your profit, unless you positively know that your overhead is in line with your budget and expense units and that you have the required volume of work in process and that all your jobs will at least pay their proportion of overhead.

Otherwise you simply are temporarily burying your overhead in the cost of your large jobs in process, until such a time when you wake up to the fact that the full amount of the contract is taken up in merchandise, labor and expense, and the contract is only three-fourths complete, and you only have three more months left in the year to finish up the year's business.

The way you have charged your jobs during the first nine months of the year, you have shown a profit, but you haven't any other big jobs in process to which you can charge your overhead for the last three months.

You will therefore have to turn to your book profits to pay for the cost of the jobs that are to be finished—jobs that did not pay the proportion of overhead.

But on the other hand, if you have other large jobs in process, you can keep on going, burying your overhead in these jobs, at the same time showing a book profit, or in other words, you are jumping from limb to limb.

But what are you going to do when there are not any more limbs to jump to? Then you will have to lay the cards on the table.

The remedy for this is a good book-keeper.

(To be continued in next issue)

BOARD OF PLUMBING EXAMINERS APPOINTED

The board of plumbing examiners as appointed by the Port Arthur City Council consist of J. W. Barnes, Chairman, and R. A. Shaw representing the master plumbers and W. Kirkbridge and Matt McArthur, the journeymen. The board met recently and elected Mr. Barnes, chairman. A. Peckett, building and plumbing inspector of the city, is ex-officio by virtue of office.

"Sanitary Engineer," the Paper That Publishes All the News While it is News

Market Conditions and Tendencies

Price Trend on Sanitary and Heating Supplies

Markets at a Glance

FIRMER tones are noted in the prices of most lines of goods which are of interest to the plumber, steamfitter and sanitary engineer. Advances in price have been more frequent than declines during the past two weeks. The advance in soil pipe should be noted, as well as the advance at some centres of boiler plate and wrought iron, malleable and cast pipe fittings and tinner's machines.

The ingot metal market has had a steady downward tendency for some time now, copper, tin and lead being the metals affected strongly. The markets are not strong in these lines, but, up to the

present, the effect of this downward trend in prices has not been felt on the finished product, to any great extent.

The iron and steel markets are still firm, a few small advances having occurred on some lines of commercial bars, but in some centres a decline is looked for in the near future, as a result of very high production in steel and iron, and at present, what appears to be an insufficient market to dispose of the very heavy production.

Merchants from all centres report that business is gradually becoming better steadily each week, though there is room for improvement yet.

Montreal Markets

MONTREAL, May 31.—A generally firmer tone is noticed in trading in all lines during the last two weeks, an activity which would have been about one month earlier all around had it not been for the lateness of the spring. In some lines even yet, buyers seem wary and are holding off, though other lines report brisk trading.

Price changes are very few, the recent upward move appearing to have reached a limit fixed by similar tendencies in primary markets where the recent advance in some cases has been followed by a sharp decline. It is of interest to note, however, that the main price revision in this week's list, is in the upward direction, discounts on pipe fittings having been reduced on a scale varying from two and one-half to five per cent. The tone of primary metal markets is also being felt in the scrap market where slight advances are noted in copper, boiler plate and wrought iron and fractional declines in lead and zinc.

EAVES AND CONDUCTOR STAY AT FORMER LEVELS

Montreal.

There are no signs of any change in the prices of eaves and conductors in the local market. Though the season has been late, trading is now reaching its usual summer levels and is reported firm from all sources. The quotations current on the local market are as follows:

EAVESTROUGH—

O. G. round and half round, per 100 ft. 3 in., \$16.90; 10 in., \$18.70; 12 in., \$22.20; 15 in., \$35.50; 18 in., \$45.00.

O. G. Square bead, per 100 ft: 8 in., \$15.90; 10 in., \$17.70; 12 in., \$21.20; 15 in., \$34.50; 18 in., \$44.00.

Discount 65 and 5 per cent.

CONDUCTOR PIPE—Round, Plain and Corrugated, per 100 ft.: 2 in., \$18.40; 3 in., \$22.30; 4 in., \$29.60; 5 in., \$48.00; 6 in., \$58.80.

Discount 65 and 5 per cent.

CONDUCTOR ELBOWS—

Plain or corrugated, price per doz 2 in., \$5.25; 3 in., \$6.00; 4 in., \$10.50; 5 in., \$24.00; 6 in., \$29.00.

Discount 65 and 5 per cent.

FURTHER IMPROVEMENT NOTED IN COTTON WASTES

Montreal.

Increased business in the cotton wastes market continues to be noted during the past week. Prices remain unchanged from the levels established this spring, as follows:

COTTON WASTES—

	Per lb.
Cream polishing	0 24
White, XXX extra	0 20
White, XX grand	0 18½
White, XLCR	0 17
X Empire	0 15½
X Press	0 14

Colored—

Fancy	0 15½
Lion	0 14
Standard	0 12½
Popular	0 10½
Keen	0 08½

Wool Packing—

Arrow	0 25
Axle	0 21
Anvil	0 17

Dominion W pers—

White cotton	0 20
Colored cotton	0 13½

F.o.b. Toronto and Montreal.

SCRAP METAL PRICES FOLLOW PRIMARY MARKET TREND

Montreal.

Considerable activity is shown by the scrap metal market this week, particularly in the matter of price changes, several metals being announced at new levels. Following the recent decline in lead and zinc in primary markets both these metals have eased off fractionally while copper has advanced half a cent. Wrought iron is \$3.00 per ton higher and boiler plate \$2.00 per ton. Trading is reported to be fairly good, though not so well as should be the case at this time of the year. Local quotations are averaging as follows:

SCRAP—

Automobile Tires	0 50
Rubber Shoes	0 02½
Yellow brass	0 07½
Red brass	0 10½
Light brass	0 05
Scrap zinc	0 05
Lead, heavy	0 05
Lead, tea	0 03¾
Light copper	0 10½
Heavy copper	0 13¾
Wrought iron, R. Rd. No. 1 per gr. ton	15 00
Malleable scrap (ton).....	18 00
Pipe scrap (ton).....	10 50
Heavy melting steel.....	13 00
No. 2 busheling	7 00
Boiler plate	14 00
No. 1 machinery cast.....	24 00

CORRUGATED SHEETS ARE MOVING AT GOOD PACE

Montreal.

Corrugated sheets are moving at a good pace in the local market, and with navigation now open will show increased improvement as the season advances. The quotations now in force here are as follows:

CORRUGATED SHEETS—

	Per 100 sq. ft.
No. 28 gauge	7 00
No. 26 gauge	7 50
No. 24 gauge	10 00
No. 22 gauge	12 50
No. 20 gauge	14 00
No. 18 gauge	19 00
Less 10 per cent.	
Lighter than 24 gauge and wider than 27 in.,	
75 cents per square extra.	

ENAMELED WARE SHOWS SIGNS OF IMPROVEMENT

Montreal.

Sales of enameled ware show signs of improvement in the local market during the past fortnight, prices remaining at the following levels:

ENAMELED WARE—

Sinks, flat rim—	1 only	2 only	3 only
16 x 24	\$ 7 50	\$ 7 40	\$ 7 30
18 x 30	8 70	8 60	8 50
20 x 30	9 90	9 80	9 70
Bath tubs, roll rim, 4, 4½, 5 feet, 24 to 30 in. wide			51 40
Bath tubs, 5½ feet,			57 10

Lavatories—

17x19 in. Apron F189 or P4045.....	15 30
18x24 in. Apron F154 or P3845 or P3847	23 60
18x21 in. Apron F169 or P4205.....	17 60
17x19 in. Roll rim. F241 or P4345.....	12 60
Less 30 per cent.	

METAL LATH QUOTATIONS ARE AT SAME LEVELS

Montreal.

The firm state of the metal lath market reported in the last issue still continues. Local distributors reported good business during the present month. Quotations remain as previously reported, the following being those in force on the local market:

METAL LATH—	per sq. yd.
Painted—	
26 gauge	23c.
24 gauge	28c.
32 gauge	32c.
Galvanized, 10c. per sq. yd. extra.	

CLOSET GOODS STILL BEHIND IN TRADING ACTIVITY

Montreal.

Prices on closet goods remain unchanged during the past week with business progressing somewhat, though still behind the mark of other years. Quotations on the local market are as follows:

CLOSET COMBINATIONS—

Low Down Outfits,	each
Closet, standard outfit, oak.....	24 00
Do., post hinge seat	25 00
Do., oak vitro or Pussyfoot.....	24 50
Do., post hinge seat	25 50
Do., mahogany vitro or Pussyfoot, post hinge seat and cover	28 00
Do., vitreous china, oak post hinge seat and cover	29 00
Do., vitreous china, mahogany post hinge seat and cover	30 00
Do., white vitro or Pussyfoot, mahogany post hinge seat and cover	30 00
Do., enamelled iron tank, oak post hinge seat and cover	29 50
Do., enamelled iron tank, mahogany post hinge seat and cover	29 50
Add for ¾" valve on supply pipe.....	1 25
Add for spud	0 60
Add for reverse trap bowl	1 50
Add for syphon jet bowl.....	7 00
Deduct for supply pipe	0 80
Deduct for floor hinge	0 60

CLOSET BOWLS—

Richieu bowl	8 00
Washdown bowl with spud	9 50
Reverse trap bowl with spud.....	9 50
Syphon jet bowl with spud.....	15 00

CLOSET SEATS—

Oak post hinge seat and cover.....	3 85
Oak wood strip seat and cover.....	3 50
Mahogany finish post hinge seat and cover	4 05

CLOSET TANKS—

Low down, oak vitro or Pussyfoot with fittings less seat	12 00
White vitro or Pussyfoot with fittings, flush elbow and supply	16 50
Vitreous china tank with fittings, flush elbow and supply	16 00
Enamelled iron with fittings, flush elbow and supply	16 00

NO FURTHER PRICE CHANGES IN BAR PRODUCTS MARKET

Montreal.

No changes have been noted in the bar products market during the past two weeks, the recent advances seeming to

have come to an end, for the time being, at least. Single reeled machinery steel was the last of these to be noted. Quotations now in force locally are as follows:

IRON AND STEEL—

Common bar iron. 100 lbs.....	3 95
Refined iron	5 45
Irish finish machinery steel.....	4 00
Mild steel	3 95
Single reeled machinery steel.....	5 50
Band steel	3 95
Sleighshoe steel	3 95
Spring steel	5 00
Tire steel	4 15
Harrow tooth steel	3 80
Toe caulk steel	4 85
Mining tool steel, per lb.	0 19
Black Diamond tool and cast steel, per lb.	0 19

NOTE.—Refined iron is approximately \$1.50 per cwt. over base, but fluctuates owing to unsettled market.

Band steel in scroll bundles, 50c per 100 lbs. extra.

Iron and steel 3-16 in. and thinner, 50c per 100 lbs. extra.

SOIL PIPE MARKET EVINCES STRONG TENDENCIES

Montreal.

Soil pipe and fittings continue in a firm market locally. Trading is good and prices continue without change, the levels established in March still ruling. Quotations are as follows:

SOIL PIPE—

2 and 3 inch	33 1-3%
4 inch	33 1-3%
5 and 6 inch	33 1-3%
8 inch	net

FITTINGS—

2 to 6 inch	45%
8 inch	net

CEMENT TRADING IS IMPROVING STEADILY

Montreal.

The cement market is without change locally so far as price is concerned. Trading continues to improve steadily, according to reports from distributors throughout the district. Local quotations are as follows:

CEMENT—

Car load lots, per bag, F.o.b. steam cars	0 86
Per Bag, delivered	0 94
Less car lots, per bag, F.o.b. yard.....	0 94
Per bag, delivered	1 04
Rebate of 20 cents for empty bags.	

ACTIVITY IN RADIATION GOODS NOT OVERLY STRONG

Montreal.

There has been little change in the situation so far as radiation goods are concerned. The market is still more or less quiet though with a slight tendency towards improvement. Prices remain unchanged at the following levels:

RADIATORS AND BOILERS—

Radiator list prices are for 1, 2, 3, 4 and 5 column radiators, per sq. ft.

45 in. to 38 in., \$1; 32 in., \$1.10; 30 in., \$1.15; 26 in., \$1.20; 23 in., \$1.26; 22 in., \$1.30; 20 in., \$1.36; 18 in., \$1.40; 16 in., \$1.50; 14 in., \$1.55; 13 in., \$1.60. Discount 44 per cent for hot water, and 45 per cent. for steam.	
--	--

Wall radiators—5 ft., \$1.15; 6 ft., \$1.10; 7 ft., \$1.05; 9 ft., \$1.05; 12 ft., \$1.05; Discount 41 per cent.

Boilers—Round . t water boilers, sizes from 0 to 10, 52 per cent. off list. Square or sectional hot water or steam boilers, 15 in., 3 per cent. with Ontario Government trimmings, list. Square or sectional water boilers, 19 in. to 36 in., 8 per cent. Square or sectional steam boilers, 9 in. to 26 in., 5 per cent. Ontario Government trimmings, list plus 7 per cent. Square or sectional water or steam boilers, 48 in., list plus 10 per cent. With Ontario Government trimmings, list plus 18 per cent.

Round steam boilers, standard trimmings, 16 per cent. Ontario Government trimmings, 13 per cent.

F.o.b. Montreal, Toronto, Guelph.

EARLY CHANGES NOT LIKELY IN COMPRESSION GOODS

Montreal.

Compression goods remain without feature this week, the steady trading previously reported continuing at levels established some weeks ago. The opinion of local distributors is that these prices will remain in force for some little time to come unless some unforeseen circumstances make other moves necessary. Quotations on the local market to-day are as follows:

VALVES AND BIBBS—

Compression work, standard	45%
Fuller work, standard	30%
Quick opening, compression bibbs.....	43%
Bath cocks, quick opening	38%
Bath cocks, compression	40%
Basin cocks, quick opening	46%
Flatway stop and waste cocks, standard	54%
Roundway stop and waste cocks, std....	42%
Brass steam cocks, standard, ¼ in.....	50%
Radiator valves, standard	55/25%
Do., removable discs	55/25%
Globe, angle and check valves, std....	25%
Gate or straightway	25%
Emco globe valves	33%
Emco check valves	33%
Jenkins globe, angle, check and swing check	plus 15%
Jenkins gate or straightway.....	plus 11%
Jenkins iron body, globe and angle.....	plus 10%
Jenkins iron body, gate.....	12%
N. P. "O" and "S" traps.....	34%

DISCOUNTS ON PIPE FITTINGS HAVE BEEN REDUCED

Montreal.

Pipe fittings have undergone a revision of discounts of late, the discounts being reduced in a number of instances. Plugs, cast iron fittings and flanged unions were altered from 15 per cent. to 10 per cent., bushings from 17½ per cent. to 15 per cent., unions from 33 1-3 per cent to 30 per cent and malleable fittings from 65 per cent to 63 per cent. The discounts now in force are as follows:

PIPE FITTINGS—

Cast iron fittings	10%
Plugs, cast iron	10%
Do., solid	10%
Do., countersunk	10+
Bushings, cast	15%
Do., malleable	15+
Unions	30%
Flanged unions	10%
Flanged fittings	27½%
Dart unions, black, ¼ to 2 in.....	331-3%
Do., ¼ in., 2½ in., and larger.....	23%
Do., galv. add to black.....	30%
Nipples, ¾ to 4", close and short.....	50%
Do., long	55%
Do., 4½ to 8", close and short.....	40%
Do., long	45%
Couplings, 4" and under	25%
Do., 4½" and larger	5%

Malleable Fittings—

Piece list effective June 1st. 1922. Discount 63 per cent.

INGOT METAL MARKET STILL IS SOMEWHAT UNSETTLED

Montreal.

The ingot metal market still remains unsettled though there is some slight evidence of a firmer tone this week. The European situation is still a drawback to conditions improving in England and at the moment the outlook is somewhat uncertain. There has been, however, a substantial reaction from the high prices reached a month or two ago and the general level of prices is now more reasonable.

TIN.—This metal continues to fluctuate within narrow limits but there is no sign yet of any particular interest on the part of American buyers. This is

the key to the situation and until they come in to the market again it is not likely that there will be much advance. The local market is slightly lower at 51 cents per lb.

COPPER.—The New York market is easier in sympathy with London where the most is being made of any bearish factors. Copper has now declined 1½ cents per lb. from the top price and 16 cents is not an unreasonable figure. American mills must soon come into the market again which should have a steadying effect upon prices. The local market is quiet at 20½ cents for casting.

LEAD.—East St. Louis continues to decline and evidently the possibility of foreign lead being imported into the U. S. A. has its effect upon prices. Stocks are still low in the U. S. A. and were if not for the foreign situation the market would, no doubt, have rallied before this. London is slightly lower, chiefly

owing to more plentiful offerings. The local market is easier at 8 cents.

SPELTER.—After going as low as 6.75 last week East St. Louis advanced sharply to 7.15 but it is again easier owing to the decline in London. There is evidently considerable buying still to be done for May and June and as stocks are somewhat light a further advance would not be surprising. American spelter has temporarily ceased to be a factor in London where the market is rather easy. The local market is easier at 9¼ cents per lb.

ANTIMONY.—The New York market is slightly easier but locally the situation remains firm owing to the scarcity of supplies. There is no change in local quotations of 8 cents for Chinese but the English market is firmer at 9 to 9½ cents per lb.

ALUMINUM.—A quiet tone continues in this market locally with prices remaining at 25 cents per lb.

Toronto Markets

TORONTO, May 30.—The market trend during the past two weeks has seen more price advances than declines. Business is reported to be better and to be getting better steadily in most lines. Local jobbers report that sales in some lines of plumbing and heating have not yet reached the height expected of them at this season of the year.

The tendency in primary markets is downward at the present time. This is especially noticeable in connection with copper, lead and tin ingot metals. Brass and copper scrap are following and show declines. Lead sheet prices also dropped slightly.

Among some of the lines that advanced in price will be found soil pipe, which takes a new discount of 20 per cent. except on 4 in. size, which takes 25 per cent. off list. The old discount on this commodity was 33 1-3 per cent. on all sizes. Cast and malleable pipe fittings advanced approximately 3 per cent., as did Gurney stoves and ranges. Some varieties of iron and steel bars felt a slight advance in price. There is a shortage noted on some of the latter, part shipments only being received by local jobbers.

Gas and electric ranges are not plentiful; shipments are not being made promptly to jobbing houses.

Collections are not noticeably improved.

LEAD AND ZINC GOODS CHANGE SLIGHTLY

Toronto.

See following list of prices. Cut sheet extras have been added to the lead list:

LEAD AND ZINC GOODS—

Lead pipe, per 100 lbs., up to 2".....	14 50
Do., 2" to 8".....	15 50
Do., 8" and over.....	16 50
Lead waste, per 100 lbs.....	15 50
Note—Lead pipe is subject to a discount of 10 per cent.	
Lead traps and bends.....	15 50
Lead wool, lb.....	0 14 ½
Lead sheets, 2½ lbs., sq. ft. per lb.....	0 12 ½
Lead sheets, 3 to 3½ lbs.....	0 11 ¾
Do., 4 to 8 lbs., sq. ft. lb.....	0 11 ¾
Cut sheets, ¾ c. per lb. extra.	
Cut sheets, to size, 1 c. per lb. extra.	
Solder, guaranteed, lb.....	0 32 0 33 ½
Do., strictly, lb.....	0 30 0 31 ¾
Do., commercial.....	0 28 ¼ 0 29
Do., wiping.....	0 30 0 31
Do., wire.....	0 37 0 43
Zinc sheets, casks, lb.....	0 11 ¾ 0 12 ½
Do., do., less, lb.....	0 12 ¼ 0 13 ½

SOME NEW PRICES ON CANADA PLATES

Toronto.

Not much change has taken place in Canada plates during the last week, but

a few additional lines have been added. See following list:

CANADA PLATES—

	Per box
Ordinary, 75s.....	5 65
Blued, 75s.....	5 95
Blued and oiled, 75s.....	6 05
Polished, 75s.....	6 85
Ordinary, 60s.....	5 50
Blued, 60s.....	5 80
Blued and oiled, 60s.....	5 90
Polished, 60s.....	6 70
Ordinary, 52s.....	5 40
Blued, 52s.....	5 70
Blued and oiled, 52s.....	5 80
Polished, 52s.....	6 60
Welsh polished, 60s.....	7 35
Welsh polished, 52s.....	7 10

ANOTHER DECLINE IN INGOT METALS

Toronto.

This week has seen another decline on ingot metals, Copper, tin and lead again featuring. At the end of last year these lines had steadily climbed up in price but of late the price tendency seems to be falling away. Shipments from U. S. A. are slow yet, but

in a short period it is expected that there will be a big improvement in this respect.

Copper \$18.00; Tin \$46.00 to \$48.00; Lead \$8.00 to \$8.25; Spelter \$10.00 to \$10.25; Antimony, \$8.25 to \$8.75; Aluminum, \$23.00 to \$25.00.

IRON AND STEEL BAR PRICES ADVANCE SLIGHTLY

Toronto.

The market for iron and steel bars has been steady and well up to the average; no higher prices are expected for a short period at least. Commercial steel bars are very scarce, part shipments of orders only are being received by local jobbers.

IRON AND STEEL—

Mild steel bars and small shapes.....	4 00
Mild steel bands, 3-16 in. base 4 40	4 50
Bar iron, base.....	4 00
Sleigh shoe steel.....	4 10
Tire steel.....	3 60
Spring Steel.....	10 50
Cold drawn steel.....	5 50
Hoop steel, heavier than 1"x20G.....	5 50
Do., lighter than 1"x20G.....	6 00
Norway iron.....	12 50
Toe caulk iron.....	4 20
Crucible cast steel.....	30 00
Mining drill steel.....	18 50
Cast tool steel, high grade.....	30 00

ADVANCE REGISTERED IN SOIL PIPE AND FITTINGS

Toronto.

There has been an advance in the price of soil pipe and soil pipe fittings. This took effect during the past week. The demand in this line is very strong at present and there is no indicating that prices will go any higher for some time. See following list of discounts:

SOIL PIPE AND FITTINGS—

2 inch.....	Less 20%
3 inch.....	Less 20%
4 inch.....	Less 25%
5 and 6 inch.....	Less 20%
8 inch.....	net
FITTINGS—	
8 inch fittings.....	net.
2 to 6 inch.....	Less 37½%

CAST AND MALLEABLE PIPE FITTINGS ADVANCE TO HIGHER LEVELS

Toronto.

New price changes have occurred in malleable and cast pipe fittings since last issue of Sanitary Engineer. New discounts have been struck. See following list for new prices:

PIPE FITTINGS—Cast Iron—

Elbows, tees, etc., standard sizes.....	10%
Plugs, solid, countersunk and std.....	10%
Bushings.....	10%
Flanged unions.....	10%
Flanged fittings.....	20%

MALLEABLE FITTINGS—

Bushings.....	15%
Hex. nipples, H. & L.....	25%
Steam cock wrenches.....	30%
Union ells and tees.....	50%
Boiler fittings (old style).....	32½%
Do., (new style).....	27½%
Lip unions, all sizes.....	30%
Ringhangers.....	30%
Wrought nipples to 4" close & short.....	45%
Do., 4½" and up.....	5%
Malleable fittings, sold from price list, less 63%	

GURNEY STOVES AND RANGES FIGURE IN SLIGHT ADVANCE

Toronto.

The advance on Gurney stoves and ranges, which occurred this week, amounts to about 5 per cent. on all lines. This change in prices was caused by revision of costs. Material and labor costs have advanced slightly since last stove prices were given out.

SCRAP BRASS AND COPPER FEEL DECLINE

Toronto.

The market prices for scrap materials declined materially on copper both light and heavy, also on red brass turnings. Current prices given below:

SCRAP MATERIALS—		f.o.b. Toronto	
Scrap Iron			
Heavy melting steel	16 00	—	17 00
Scrap pipe	9 00	—	10 00
Steel turnings	12 50	—	13 50
Malleable scrap	14 50	—	15 00
Rails, scrap	13 50	—	14 50
Net tons—			
No. 1 cast	19 00	—	20 00
Stove plate	14 50	—	15 00
Car wheel (std.)	16 00	—	17 00
Scrap Metals			
Heavy copper wire	12 25	—	13 00
Light copper	9 50	—	10 00
No. 1 composition	10 50	—	11 50
Red brass turnings	8 00	—	8 50
Light brass	5 00	—	5 50
Heavy yellow brass	7 00	—	8 00
Heavy lead	5 25	—	5 75
Tea lead	3 25	—	3 75
Scrap zinc	5 00	—	5 75
Scrap Rubber			
Boots and shoes	2 25	—	2 50
High rubber boots	1 75	—	2 00
Auto tires	0 35	—	0 50
Solid tires	0 75	—	1 00
Inner tubes, mixed	2 50	—	3 00
Peelings, mixed	1 00	—	1 25

BLACK ELBOWS AND PLATES MAY GO UP IN PRICE

Toronto.

Canada black plates are becoming scarce locally; this may cause black elbows to rise in price as well as the price of the plates themselves.

PLATES, CANADA—		Per box	
Ordinary, 52 sheets	5 60	—	5 60
Do., 60 sheets	5 65	—	5 65
Blued and oiled, boxes 52's	5 80	—	5 90
Do., boxes, 60's	5 90	—	6 00
English blue 52 sheets	5 90	—	6 25
English polished, 52 sheets	7 25	—	7 25
English polished, 60 sheets	7 75	—	7 75
WELSH CANADA PLATES—			
Cold polished, 18 x 24 60's	7 35	—	7 35
Cold polished, 18 x 24 52's	7 10	—	7 10
PLATES, COKE TIN—			
IC, 20 x 28, 112 sheets	16 00	—	18 00
IX, 20 x 28, 112 sheets	16 25	—	18 00
IXX, 20 x 28, 56 sheets	9 80	—	11 00
PLATES, CHARCOAL TIN—			
IX, 20 x 28, 56 sheets	8 50	—	9 00
IXX, 20 x 28, 56 sheets	9 90	—	10 50
PLATES, TERNE—			
IC, 14 x 20, 112 sheets	14 50	—	15 00

VALVES AND BIBBS REMAIN UNCHANGED IN PRICE

Toronto.

Emco vertical check valves and Emco globe valves, other sizes than $\frac{3}{8}$, $\frac{1}{2}$, and 1 in., are added to list below:

VALVES AND BIBBS—			
Compression work, standard	45%	—	—
Fuller work, standard	30%	—	—
Quick opening compression bibbs	45%	—	—
Bath cocks, compression	41%	—	—
Jenkins iron body, gate	12 and 10%	—	—
Bath cocks, quick opening	41%	—	—
Basin cocks, quick opening	46%	—	—
Flatway stop and waste cocks, std.	54%	—	—
Roundway stop and waste cocks, standard	54%	—	—
Brass steam cocks, standard	50%	—	—
Radiator valves, standard	55/25%	—	—
Do., removable discs	55/25%	—	—
Globe, a igle and check valves, standard	25%	—	—
Gate or straightway	25%	—	—
Emco Globe valves, standard	23%	—	—
E. M. Co. Globe Valves, other sizes	28%	—	—
Emco vertical check valves	23%	—	—
Emco check valves, swing $\frac{3}{8}$, $\frac{1}{2}$, 1"	28%	—	—
Emco check valves	28%	—	—
JMT check, angle and globe, plus	5%	—	—
Model C	net list	—	—
Standard	net list	—	—

BOILER STAND PRICES ADJUSTED SLIGHTLY

Toronto.

Boiler stand, 35 gal. size, is now priced at \$1.65 and 66 gal. size sells at \$2.25.

Stahl boiler stands are added to list and sell at 70c each.

BOILER STANDS—

Each—5 gal. \$1.50; 12 gal. \$1.50; 18 gal. \$1.50; 25 gal. \$1.50; 30 gal. \$1.50; 35 gal. \$1.75; 40 gal. \$1.90; 52 gal. \$2.10; 66 gal. \$2.25; 82 gal. \$2.50; 100 gal. \$3.80; 120 gal. \$4.00; 144 gal. \$4.00; 168 gal. \$4.00; 192 gal. \$4.00; Adjustable Stands 12 to 14 inch 60c. Stahl boiler stand, 70c.

NO CHANGES IN PRICE OF WROUGHT PIPE

Toronto.

Trade in wrought iron pipe has been well up to the average during the past two weeks. Price list No. 59, dated April 24th, 1923, is still in effect.

WROUGHT PIPE

Price List No. 59.		April 24th, 1923.	
Standard Butt-weld Pipe S. C. per 100 feet.			
Size	Blk.	Steel Galv.	Iron Wrot. Galv.
$\frac{1}{8}$ in.	6.00	8.00	7.56
$\frac{1}{4}$ in.	4.32	6.30	5.96
$\frac{3}{8}$ in.	4.32	6.30	5.96
$\frac{1}{2}$ in.	5.53	6.97	7.82
$\frac{3}{4}$ in.	6.79	8.40	9.55
1 in.	9.69	12.07	13.77
$1\frac{1}{4}$ in.	13.11	16.33	18.63
$1\frac{1}{2}$ in.	15.68	19.53	22.23
2 in.	21.09	26.27	29.97
$2\frac{1}{2}$ in.	33.35	41.54	47.55
3 in.	43.61	54.32	62.33
$3\frac{1}{2}$ in.	56.12	69.00	79.55
4 in.	66.49	81.75	94.55

Standard Lap-weld Pipe S. C. per 100 ft.			
Size	Blk.	Steel Galv.	Iron Wrot. Galv.
2 in.	24.42	29.60	33.30
$2\frac{1}{2}$ in.	36.27	44.46	50.31
3 in.	47.43	58.14	65.79
$3\frac{1}{2}$ in.	57.04	69.92	79.12
4 in.	67.58	82.84	93.74
$4\frac{1}{2}$ in.	78.74	96.52	111.13
5 in.	91.76	112.48	133.15
6 in.	119	145	173
7 in.	155	190	221
8 in.	163	200	233
8L in.	137	259	268
9 in.	231	283	317
10L in.	214	262	304
10 in.	276	338	391

SHORTAGE STILL NOTICEABLE IN GAS RANGES

Toronto.

The shortage which dates back to the beginning of the year, on gas stoves and ranges is still holding up shipments. This is partly caused by changes in the designs of a large portion of the line.

RADIATORS AND BOILERS RETAIN PRICES OF LAST ISSUE

Toronto.

The demand for radiators and boilers is at present good, and the prices remain unchanged.

RADIATORS AND BOILERS—

Revised radiator list prices are for 1, 2, 3, 4 and 5-column radiators per square foot.

38 in., \$1; 32 in., \$1.10; 30 in., \$1.15; 26 in., \$1.20; 23 in., \$1.26; 22 in., \$1.30; 20 in., \$1.36; 18 in., \$1.40; 16 in., \$1.50; 14 in., \$1.55; 13 in., \$1.60.

Discount on 2, 3, 4 and 5 column standard sizes, 44 per cent. for water and 45 per cent. for steam.

Discount on 1-column standard size, and 2, 3, and 4-column hospital sizes 36 per cent. for water and 37 per cent. for steam.

Discounts on 1 column hospital size water 22 per cent. Steam 23 per cent.

Wall radiators—5 ft., \$1.15; 6 ft., \$1.10; 7 ft., \$1.05; 9 ft., \$1.05; 12 ft., \$1.05. Discount 41 per cent.

BOILERS—

Water:

Round 52 per cent. off list. Square 8 per cent. off list.

Steam:

Round, 13 per cent. off list; Square, list plus 7 per cent.

SHEET METAL PRICES ARE NOT CHANGED

Toronto.

The extra of 40c per 100 lbs. for Keystone and Premier brands of galvanized sheets has been cut down to 20c. Other prices remain the same as published in our last issue two weeks ago.

GALVANIZED SHEETS—

		Premier and Apollo	
10 $\frac{3}{4}$ oz.	6 90	7 40	—
U. S. 28 base	6 50	6 90	—
U. S. 23 base	6 30	6 60	—
22 and 24	6 05	6 45	—
18 and 20	6 05	6 30	—
16	5 90	6 15	—
12 and 14	5 75	6 00	—
Queen's Head			
28 gauge, base	7 50	8 00	—
26	7 35	7 60	—
24	7 05	7 30	—
22	6 90	7 15	—
Fleur de Lis			
28 gauge base	7 25	7 50	—
26	6 85	7 10	—
24	6 55	6 80	—
22	6 40	6 65	—

An extra 20c. per 100 lbs. is charged for Keystone and Premier brands copper-bearing sheets. An extra is now charged on galvanized sheets, 10 $\frac{3}{4}$ oz. and 28 ga., when shipped out in sheets 3 feet wide. The extra charged over prices shown in 20c. per 100 pounds.

TANK STEEL PLATES—

$\frac{1}{4}$ -in. and heavier, base	3 60
3-16 in.	3 95

BLUE ANNEALED SHEETS—

10 gauge, base	4 50	4 60
12 gauge	4 55	4 65
14 gauge	4 60	4 70
16 gauge	4 65	4 75

BLACK SHEETS—

18-20 gauge	5 25	5 35
22-24 gauge	5 30	5 40
26 gauge	5 35	5 45
28 gauge	5 50	5 60

A charge of 25c per 100 lbs. is made for less than case lots. An extra 10c. per 100 lbs. is also charged on sheets 26 in. wide.

PORTLAND CEMENT PRICES FIRM

Toronto.

No changes have occurred since last issue of Sanitary Engineer in the prices of portland cement.

CEMENT—

Car lots, per barrel	3 45
Less car lots, per barrel, f.o.b. yard	4 35
Per barrel, delivered	4 55
Single bags, 1.15 each, 4 bags to barrel.	—
Extra charge of \$1.50 per load on less than 24 bag lots.	—
Rebate of 20c. each for empty bags.	—

PRICES OF RANGE BOILERS HAVE NOT BEEN CHANGED

Toronto.

A steady and average demand during the past two weeks for range boilers, keeps pace with local building activity.

RANGE BOILERS—

5 gallon	St'nd'rd	Ex. He'vy
10 to 15 gallon	8 77	—
18 gallon	9 10	—
25 gallon	9 75	—
30 gallon	10 70	—
35 gallon	11 35	13 13
40 gallon	13 30	15 33
42 gallon	14 80	17 05
52 gallon	24 70	28 50
66 gallon	39 50	45 56
82 gallon	43 10	55 50
100 gallon	66 95	77 25
120 gallon	76 05	87 75
144 gallon	—	122 50
168 gallon	—	140 25
192 gallon	—	157 50

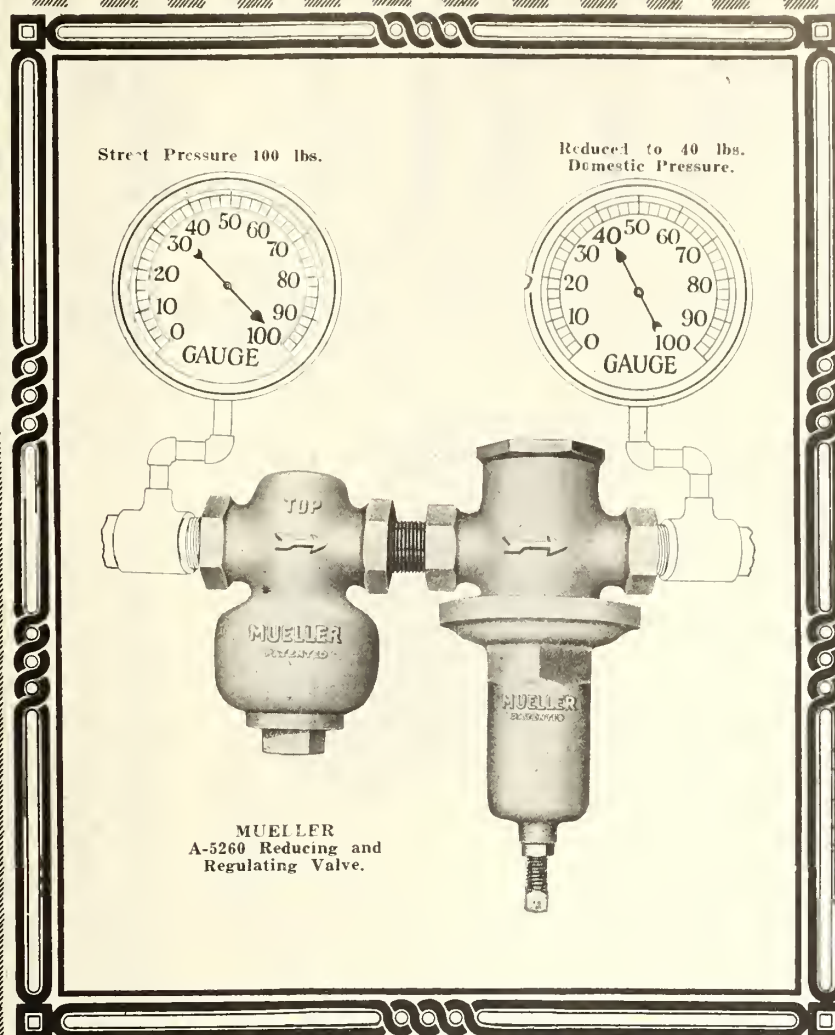
EXTRAS—

For horizontal tapping	1 15
1" Special for gas heater	1 00
Each extra 3" tapping	3 00
Each extra 2" tapping	1 75

ASBESTOS PRODUCTS SHOW NO CHANGES IN PRICE

Toronto.

The asbestos situation shows no price changes and though magnesia may rise slightly, it is not expected that prices



MUELLER
A-5260 Reducing and
Regulating Valve.

HIGH pressure is necessary in water mains, for fire protection especially. But it is not wanted in the home. In fact, high pressure strains the plumbing fixtures—makes splashy faucets—causes noisy toilets—induces water hammer—is a constant source of annoyance to the householder.

A Mueller Reducing and Regulating Valve as shown, acts as a shock absorber, reducing the high and uneven street pressure to a steady uniform pressure for domestic use. Save your customers needless annoyance—instal this Mueller Valve on every job.

H. MUELLER MFG. CO., LIMITED, SARNIA, ONT.

Water, Plumbing and Gas Brass Goods and Tools.

American Factory at Decatur, Illinois, U.S.A. Branches New York and San Francisco

Mueller Metals Co., Port Huron, Mich., Makers of "Red Tip" Brass Rod; Brass and Copper Tubing; Forgings and Castings in Brass, Bronze and Aluminum; also Screw Machined Products.

in other lines will differ from present ones in either direction for some time.

ASBESTOS PRODUCTS—

Pipe Covering—	
Air cell, 4 ply	50 per cent. off list.
Air cell, 3 ply	55 per cent. off list.
Air cell, 2 ply	57½ per cent. off list.
Boiler Covering	\$1.50 — \$2.00 per bag.
Asbestos Sheathing	\$8.25 \$9.00
Magnesia pipe covering	less 40 per cent.
Magnesia pipe covering, small lots, less 35 per cent.	

CLOSET FITTINGS

Toronto.

The prices on closet fittings and combinations remain unchanged; a list of the generally used types appears below:

CLOSET COMBINATIONS—	Each
Oak, Wood Tank, Oak W. S. Seat and Cover	24 00
Oak Vitro Tank, Oak W.S. Seat and Cover	24 00
Oak Pussyfoot Tank, Oak W.S. Seat and Cover	24 00
Oak Wood Tank Oak P.H. Seat and Cover	24 50
Oak Vitro Tank, Oak P.H. Seat and Cover	24 50
White Vitro Oak Woodstrip Seat and Cover	24 50
White, Pussyfoot Oak Woodstrip, Seat and Cover	25 00
White Vitro Tank, Mahog., P.H. Seat and Cover	26 50
White Pussyfoot, Mahog., P.H. Seat and Cover	26 50
White Vitro or Pussyfoot, oak, P.H. Seat and Cover	26 00
Mahog. Pussyfoot, Mahogany P.H., Seat and Cover	27 00
Vitreous China Tank, Oak P.H., Seat and Cover	30 75
Enam. Iron Tank, Oak P.H. Seat and Cover	28 75
Vitreous China Tank, Mahog., P.H. Seat and Cover	31 00
Enam. Iron Tank, Mahog., P.H., Seat and Cover	29 00
ADDITIONS OR REDUCTIONS ON ABOVE—	
If supplied less bend or offset, deduct..	0 50
If supplied with reverse trap bowl, add	1 50
If supplied with BOT Reverse Trap bowl Add.	2 25
If supplied with plain syphon jet bowl Add.	7 00
If supplied with N.P. stock cock on supply Pipe, Add	1 50
If supplied less brass and rubber floor flange and bolts, Deduct	0 60
If supplied less bend or offset, deduct..	0 50
If supplied less N. P. supply pipe deduct	0 70

CLOSET BOWLS—

Washdown bowl with spud	10 60
Reverse trap bowl, with spud	12 10
Syphon jet bowl, with spud	17 00
"Richelieu" bowl	10 50

CLOSET TANKS—LOW DOWN—

Oak wood, Tank and inside fittings with bend and supply	11 20
Mahog. Wood Tank, and inside Fittings with bend and supply	15 40
Oak Vitro or Pussyfoot Tank and inside Fittings with bend and supply	11 20
White Vitro or Pussyfoot Tank and Inside Fittings with bend and supply	13 45
White Enam. Tank F-585 or P.9262, or White Vitreous China Belmeade Tank with fittings (as above)	18 90

CLOSET SEATS—

Oak Rich. Seat and Cover to wall	3 50
Oak Woodstrip Seat and Cover with bolts	3 50
Oak Woodstrip Seat less Cover with bolts	2 90
Oak Post Hinge Seat and Cover	3 85
Mahog. Fin. Post Hinge Seat and Cover	4 75

PRICES ON COKE TIN AND CHARCOAL TIN PLATES MAINTAIN SAME LEVEL

Toronto.

Though there seems to be somewhat of a scarcity of tin plates locally, the price has not been advanced.

PLATES. (COKE TIN)—

20x28 100 lbs. basis, box	15 50
20x28 IC, 112s, box	16 00
20x28 IX, 112s, box	18 50
20x28 IXX, 56s, box	10 50
20x28, IXXX, 56s, box	11 50
20x28, IC Terne, 112s, box	16 00

PLATES (CHARCOAL TIN)—

20x28, IX, 56s, box	8 50	9 00
20x28, IXX, 56s, box	9 90	10 50

ENAMELLED BATHROOM FITTINGS RETAIN FORMER PRICE LEVELS

Toronto.

No price changes have occurred during last two weeks in enamelled bathroom fittings.

ENAMELED FITTINGS—

Enameled Iron Baths, 3" roll rim, 4 ft., 4 ft. 6 in., 5 ft.	51 40
Do., 5½ ft.	57 10
Lavatories—	
17x19" Apron F139 or P4045	15 30
18x24" Apron F154 or P3845 or P3847	23 60
18x21" Apron F169 or P4205	17 60
18x21" Roll Rim, F197, F199 or P4655-6	15 40
17x19" Roll Rim, F241 or P4345	12 60
Sinks, Roll Rim, 16x24 in.	18 40
Do., 18 x 30 in.	23 00
Do., 20 x 30 in.	24 70
Sinks, Flat Rim—	3 only 2 only 1 only
16x24	\$7 60 \$7 70 \$7 80
18x30	8 50 8 60 8 70
20x30	9 70 9 80 9 90
List less 30 per cent.	

COTTON WASTE PRICES OF MARCH 1ST STILL HOLD GOOD

Toronto.

There has been no change in the prices of cotton waste since early in March.

COTTON WASTES—

Cream, polishing	0 24
White, XXX	0 21
XX	0 18
X	0 17
XC	0 15½
XXX extra	0 20
X, grand	0 18½
XLCR	0 17
X, Empire	0 15½
X, press	0 14
Colored, No. 1	0 14½
No. 17	0 14½
No. 1A	0 13½
No. 1B	0 11½
Fancy	0 15½
Lion	0 14
Standard	0 12½
Popular	0 10½
Keen	0 08½

Above lines subject to trade discount for quantity.

CORRUGATED SHEETS RETAIN FORMER PRICES

Toronto.

No new prices are quoted on corrugated iron sheets.

CORRUGATED SHEETS—

	Per 100 sq. ft.
No. 28 gauge	7 00
No. 26 gauge	7 50
No. 24 gauge	10 00
No. 22 gauge	12 50
No. 20 gauge	14 00
No. 18 gauge	19 00

Less 10 per cent.
Lighter than 24 gauge and wider than 27 ins., 75 cents per square extra.

BOILER TANK AND TINNED SHEETS FOR MILK CANS

Toronto.

There has been a fair market for tinned sheets for milk cans in the past two weeks. The prices remain the same as before.

BOILER TIN—

	Small Lots	Case
	Per C. lbs.	Lots
14x60 IXX, 56 sheets per case	12 50	12 00
14x60 IXXX	12 50	12 00
TINNED SHEETS FOR MILK CANS—		
16½ x 41¾ 18 ga.	9 65	9 15
21 x 41¾ 18 ga.	9 65	9 15
30 x 72 20 ga.	14 50	14 00
30 x 45¼ 2 ga.	10 15	9 65
30 x 50, 22 ga.	10 25	9 75
30 x 54, 22 ga.	10 30	9 80
30 x 78, 22 ga.	10 35	9 85
30 x 72, 22 ga.	15 00	14 50
36 x 84, 22 ga.	15 00	14 50
42 x 84, 22 ga.	15 75	15 25
48 x 96, 22 ga.	16 50	16 00
30 x 50, 24 ga.	10 25	9 75
30 x 54, 24 ga.	10 30	9 80
30 x 58, 24 ga.	10 35	9 85
30 x 72, 24 ga.	15 0	14 50
36 x 84, 24 ga.	15 00	14 50
42 x 84, 24 ga.	15 75	15 25
30 x 72, 26 ga.	15 50	15 00

BRASS GOODS AND LAVATORY FITTINGS

Toronto.

Former price levels still maintained, existing prices will be found below:

BRASS GOODS—

No. 3825 Compression, complete with tails	3 75
No. 4 Std. Comp. Double Bath. No. 3829 F	4 46
Dicto with China Index, No. 3830F	4 92

Quick Opening—

Brass handle on top, No. 3850 F	4 90
China handle on top, No. 3850 F	5 52
Brass handle on side, No. 3851F	4 95
(less Jewell's cup)	
China handle on side No. 3852 F	5 45
(less Jewell's cup)	
No. 4½ Fuller, brass handle, No. 3862	6 48
A2395 Mueller, type Shower Faucet	9 25
¾ in. N. P. Brass Supply Pipes	2 20
½ in. N. P. Brass Supply Pipes	2 30
½ in. Galvanized Iron Nickle Plated Supply Pipes	1 75
1¼ or 1½ Overflow and Waste, 19 gauge, N. P. on rough	3 20
1½ T.B.L. Overflow and Waste, 19 gauge, N. P. on the rough	4 15

LAVATORY FITTINGS—

Riley Basin Cocks China Index, per pair	7 00
Riley Jr. Basin Cocks, China Index, per pair	6 00
Adanac Basin Cocks, Brass Handle, No. 3632, per pair	4 68
Adanac Basin Cocks, China Handle, No. 3635, per pair	5 20
Quick Opening Basin Cocks, Brass Hdle. No. 3630, per pair	3 70
Quick Opening Basin Cocks, China Handle, No. 3633, per pair	4 28
Fuller No. 0 Basin Cocks, Brass Handle, No. 3650, per pair	4 10
Fuller No. 0 Basin Cocks, China Handle No. 3651, per pair	5 04
Midget No. 0 Basin Cocks, No. Index, No. 3623 per pair	3 14
Midget No. 0 Basin Cocks, With Index, No. 3623, per pair	3 45
¾ in. N.P. Brass supplies to wall or floor	2 20
¾ in. Galv. supplies N. P.	1 80
1¼ in. N.P.S. Traps to floor No Vent 20G No. 4458	3 46
1¼ in. N.P.S. Traps to floor with Vent 20G No. 4462	4 53
1¼ in. N.P.P. Traps, No Vent 20G No. 4450	2 74
1¼ in. N.P.P. Traps No Vent Toronto By-law No. 4450	2 97
1¼ in. N.P.S. Traps with Vent Toronto By-law No. 4462	4 98
1½ in. N.P.S. Traps with Vent Toronto By-law No. 4462	6 67
2 in. N.P.S. Traps with Vent Toronto By-law No. 4462	14 00
Patent Overflow basin plugs	0 71
Pop up waste	5 00
Unique waste China Knob	5 50
Unique waste China Index	5 00
1¼ in. Deep Seal Trap No Vent	3 75
1½ in. Deep Seal Trap No Vent	6 00
1¼ in. Elliptic Trap	6 50
1½ in. Elliptic Trap	9 00
Whirlpool N.P. Traps list prices less	15%
½ in. Lever Handle, Stop and Waste solid key, No. 3969	0 83
½ in. Lever Handle, Stop and Waste, pin cheek, lose key, No. 4032	1 04
½ in. Lever Handle, Stop and Waste, pat. cap, loose key, No. 4044	1 21
½ in. Boiler Drain Cocks 3571	0 80

Hot Water from Electricity

Several interesting developments have taken place lately in Great Britain in the electric heating of water on a large scale. The electric locomotives on a section of railway linked up with an ordinary steam railway are fitted with electric boilers to supply steam for heating carriages which run from the steam line over the electrified system. Again, in a London district experiments are being made in the electric heating of water for the public baths, current for this purpose being taken during the night at very low rates.

PIPE FITTINGS

that give Real Service



In connection with your work this year see that these reliable cast iron pipe fittings are used. Made with iron of high tensile strength and correct tapings.

Our malleable fittings are made of Air Furnace Refined Iron, reamed and tapped to gauge, with perfect threads. We can supply both screwed and flanged fittings, either black or galvanized.

We are equipped to make the general run of malleable and grey iron castings for machinery manufacturers, agricultural implements, automobiles and specialties.

International Malleable Iron Company, Limited
GUELPH, ONTARIO

Representatives:

VANCOUVER, B. C. — Messrs. Ames Bros., 325 Howe St.

WINNIPEG, MAN. — Messrs. Harry F. Moulden & Son, Confederation Life Bldg.

ST. JOHN, N.B. — Messrs. H. G. Rogers, Limited, 147 Prince William St.

HALIFAX, N.S. — Mr. Geo. D. Hatfield, Bedford Chambers.

English Sheet Mills Have Large Bookings

President of A. C. Leslie & Co., Ltd., on Return From Abroad Tells of Industrial Conditions in Britain and the Continent

“ONE of the things which most impressed me on my first visit to the different works in England, especially in the sheet steel and tinplate trades,” said W. S. Leslie, president of A. C. Leslie and Co., Limited, Montreal, who has just returned from a three months’ trip to the British Isles, “was to find how busy they were. For instance, the black sheet works of John Lysaght, Ltd., at Newport—probably the largest unit of that kind in the world—were not only working at full capacity but were booked for some months ahead and in many cases were refusing orders. They seemed equally busy on ordinary qualities and on the higher grades such as motor-body, enamelling and polished sheets.

“I found the same condition to apply to practically all the sheets works in the United Kingdom, being due partly to increased demand, but largely to increased export orders, Japan being an especially heavy buyer. The fact that American mills were busily employed for home consumption and not catering so actively for export trade has doubtless helped the British makers.

Similar in Tinplate

“The position in the tinplate trade was very similar, mills generally being very fully sold up and working to the limit of their present capacity, but not operating all of their mills on account of the scarcity of skilled labor and to some extent, of fuel.

“The French occupation of the Ruhr has caused a heavy demand on British coal, this demand coming both from Germany and from other lands commonly relying on German coal. Naturally, this has caused a great increase in the price of coal and still more so of coke and while the producers continued to supply the home trade at much less than the prices obtained for export, they would not supply the full quantity required.

“This, of course, has limited the output of the mills, especially of pig iron which I found in a very firm market. The British makers generally regretted this position—even those who profited by it—as they realized that it could be only temporary and that the rapid advances in price would inevitably curtail buying by the home trade. The effect was being felt before I left for home and prices were accordingly easing off somewhat but no great reduction can be expected until the Ruhr district is again free to manufacture and ship without restriction.

“As it is, the works there are operating to perhaps fifty per cent. of their capacity and as they are shipping very little they are piling up large stocks of

steel, some of which is due to customers on contract, but a great part of it will be thrown on the market sooner or later.

“Before that district was occupied, trade generally had been steadily improving and industrial leaders in Bri-

tain looked forward to a gradual revival from natural causes. As it is, even while the position will require adjustment before long, business and financial conditions generally are much improved and the Mother Country is again showing her wonderful recuperative power.

“I was pleased to find a keen interest in Canada on the part of all British producers and a greater desire than has usually been shown in the past to cultivate this market when conditions are favorable.”

Winnipeg Markets

WINNIPEG, May 31.—The feature of the plumbing and steam-fitting market has been the advance on all lines of tinnerns’ tools and machines. An advance has also been reflected on refrigerator pans and some lines of sanitary closets. Range boilers, soil pipe and eavestrough and conductor pipe are ruling steady. Dealers report that business is showing a slight improvement, and as the season progresses business should improve.

TINNERS’ TOOLS AND MACHINES AT ADVANCED PRICES

WINNIPEG.—Following the strong tone of the tin markets higher quotations are in effect on all lines of tinnerns’ tools and machines. Latest quotations are as listed below:

TINNERS’ MACHINES—

	Each
Encased wirings.....	34 65
Small turning.....	30 05
Large turning.....	33 65
Setting down.....	22 55
Small burring.....	29 55
Large burring.....	30 60
No. 7 Stove pipe crimpers and beaders	37 00
Compound gear beaders, No. 1.....	76 35
Do., No. 2.....	69 00
Do., No. 3.....	55 90
Beading, No. 4, each.....	36 00
Elbow edging.....	25 50
Machine standards, Ordinary.....	3 00
Machine standards, wiring.....	3 00
Double Seaming Olmstead’s, No. 1.....	61 75
B. & B. Double Seaming No. 2.....	74 75
Brass Mounted Grooving, No. 1.....	45 95
Heavy Brass Mounted Groover, No. 27	72 00
Do., No. 28.....	83 70
Noyes Groover, No. 30.....	78 50
Noyes Groover, No. 31.....	94 00
Stove pipe formers, No. 4.....	31 35
Slip roll formers, No. 21.....	47 20
Slip roll formers, No. 22.....	58 80
Iron bottom gutter beaders, No. 4.....	7 70
Folders, No. 1.....	62 40
Folders, No. 2.....	88 15

TINNERS’ TOOLS—

	Each
No. 15 Sheet Iron Folders.....	35 70
No. 16 Sheet Iron Folders.....	77 45
No. 1 Wire Ring Formers.....	6 05
No. 1 Circular Shears.....	58 60
No. 1 Squaring Shears.....	105 35
No. 72 Punch and Slitting Shears.....	95 85
No. 60 Wire and Rod cutters.....	7 85
No. 271 Lever punching press.....	38 70
No. 1 Bench Plates.....	10 15
No. 2 Bench Plates.....	7 85
No. 2 Wrought Iron Stakes.....	26 90
No. 8 Wrought Iron Stakes.....	11 35
No. 16 Wrought Iron Stakes.....	6 15
No. 15 Wrought Iron Stakes.....	6 15
No. 4 Wrought Iron Stakes.....	21 10
No. 9 Wrought Iron Stakes.....	10 30
No. 12 Wrought Iron Stakes.....	7 30
No. 13 Wrought Iron Stakes.....	10 45
No. 18 Wrought Iron Stakes.....	9 30
No. 32 Cast Iron Stakes.....	13 35
No. 1 Cast Iron Stakes.....	10 10
No. 35 Cast Iron Stakes.....	3 00

HIGHER PRICES ON SANITARY CLOSETS

WINNIPEG.—Galvanized heavy gauge iron sanitary closets with seat and cover of walnut finish and outer tanks of brown Japanned with nickel plated steel hinges are quoted at \$5.11.

REFRIGERATOR PANS SHOW AN ADVANCE

WINNIPEG.—A slight advance has been recorded in refrigerator pans. Number twelve is quoted at \$5.11 per dozen, number one hundred and twenty square galvanized with embossed feet is quoted at \$10.54 per dozen.

RANGE BOILERS CONTINUE FIRM

WINNIPEG.—There is no change in the price of galvanized range boilers on the local market. A firm tone prevails and prices are fully maintained.

NO CHANGE IN SOIL PIPE FITTINGS

WINNIPEG.—There has been no change in prices on soil pipe and a good reasonable demand is now in evidence; prospects are reported bright for future business.

EAVESTROUGH AND CONDUCTOR PIPE ARE RULING STEADY

WINNIPEG.—With the approach of warmer weather building activity is improving and eavestrough and conductor pipes are ruling firm at unchanged quotations.

Gurney

PRODUCTS

Does The Furnace Heat The House?

The function of a furnace is to heat. All talk of design or special features is just so much extra annoyance to the householder whose rooms are chilly.

Gurney Furnaces Heat—Because—

The first section over the fire is double the thickness or depth of other sections, has bell-mouthed smoke flues through it, giving a large, inclined extra surface directly over the fire. In-sloped walls of firepot, push-nipple connections and the "Economizer" feature combine to make a furnace that in low fuel consumption, ease of operation and all round heating efficiency can not be excelled.

If you are not already handling Gurney Boilers write to-day for full information.

*Ask for Heating Catalogue
Section A22*

*Are you using "Warmth" to boost your Hot Water Sales?
Let us Send You a Supply*

The Gurney Foundry Co., Limited

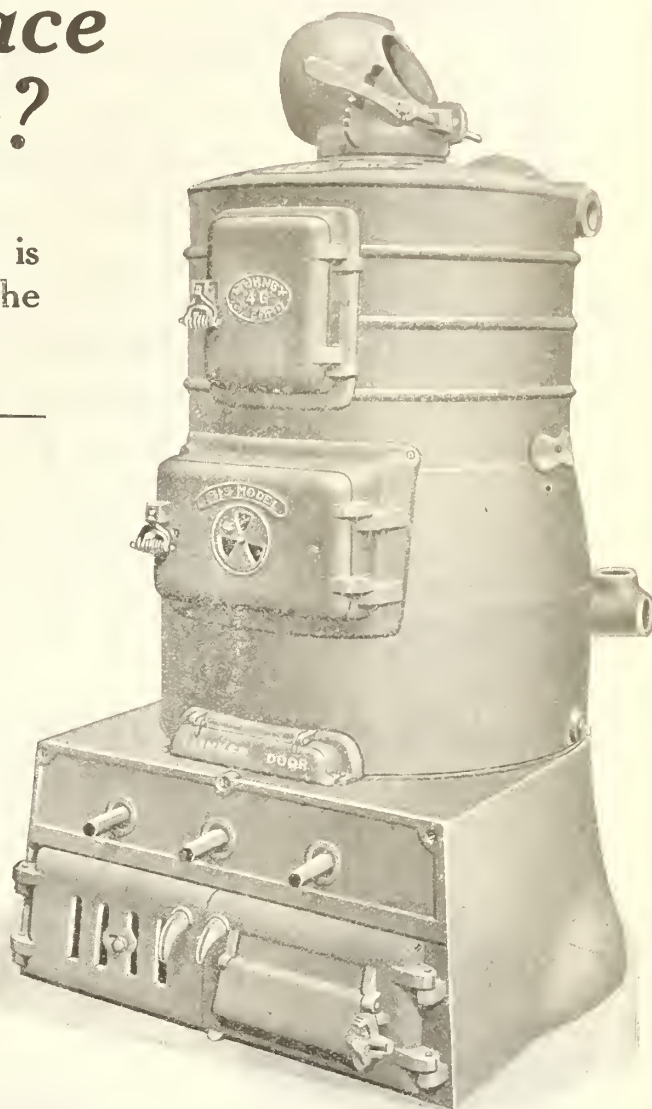
Heating and Cooking Appliances

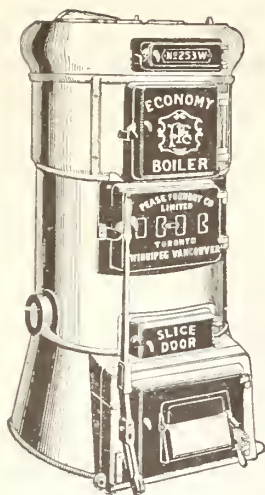
TORONTO, CANADA

MONTREAL

WINNIPEG

VANCOUVER





"Economy" Boiler

Pease

Can now supply you with any of the products of the recently incorporated

DOMINION RADIATOR and BOILER COMPANY, LIMITED

which means that, in addition to our regular line of

**Economy Round Boilers
Ideal Square Boilers
Economy Radiators**

we are selling the well-known

**Mogul Round Boilers
Safford Square Boilers
Arco Round Boilers
Peerless Radiators
Safford Radiators**

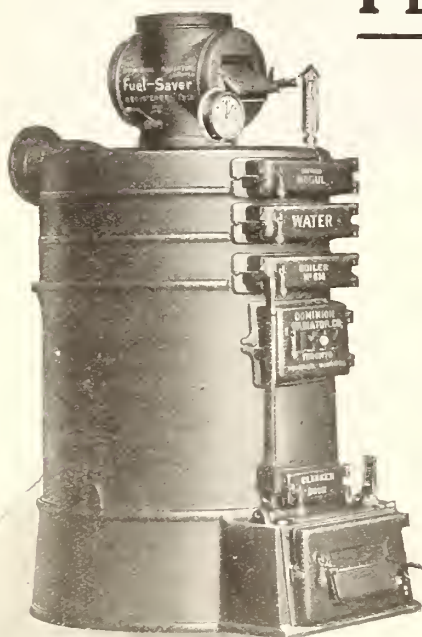
Your enquiries for any of the above will be appreciated and price sheets will be mailed upon application. If your name is not on our mailing list, communicate with us to-day.

PEASE FOUNDRY COMPANY,

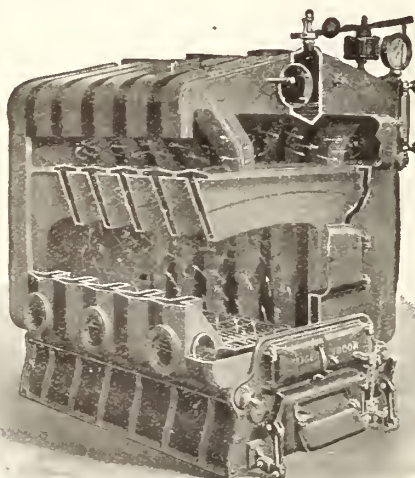
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TORONTO

PEASE WESTERN FOUNDRY

LIMITED
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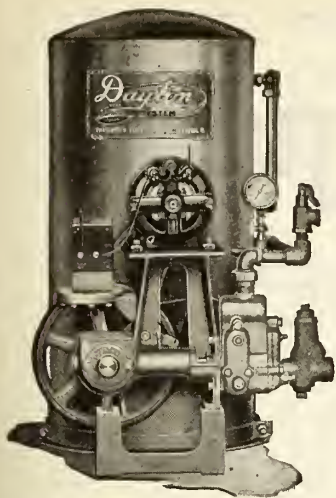
Mogul Boiler



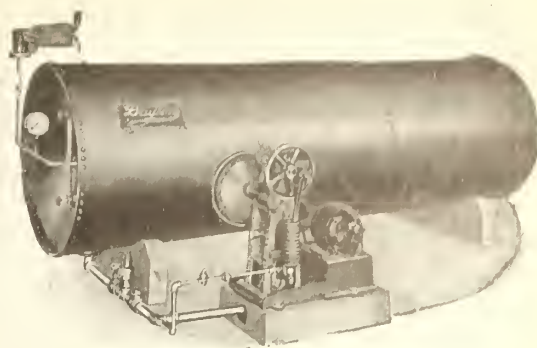
Ideal or Safford Sectional Boiler



Arco Boiler



A New Sales Plan



We Let You Spend Our Money

Here is your opportunity to test without one penny of expense whether the sale of "DAYTON" Water Supply Systems will be profitable to you.

This, briefly, is how it is done—You send us the names and addresses of twenty-five or thirty people who could use a good Water Supply System to advantage. We immediately begin mailing a series of attractive advertisements—five in all—to these prospective buyers. In each mailing piece is a return card ADDRESSED TO YOU; our name does not appear.

These five advertisements are the finest product of the printer's art and have a cumulative sales appeal that is just about irresistible. Do not confuse the "DAYTON" plan with the ordinary "filled in" form letter campaign.

You get all the enquiries, you close all the sales, you get all the benefits, and without the expenditure of one cent of your money.

We can't tell you the whole story in one advertisement—send the coupon to show you are interested and we will send full particulars by return mail.



It isn't a "DAYTON" without this trademark.

T. G. GRIFFITH & COMPANY

Manufacturers and Sanitary Engineers

165 King St. E.

Toronto, Ontario

Distributors in Ontario for

The Dayton Pump & Manufacturing Co.

DAYTON, OHIO, U.S.A.

COUPON
Send me the "DAYTON" Water System Catalog
and details of the "DAYTON" Selling Plan.
Name
Street
Town
Province

Dayton Pumps

Make the water do the running

**AIR COMPRESSORS**

Smart Turner Machine Co., Ltd., Hamilton, Ont.

AIR LINE SYSTEMS

C. A. Dunham Co., Ltd., Toronto.
United Brassfounders & Engineers, Ltd., Manchester, Eng.

ALUMINUM CASTINGS

Fittings, Limited, Oshawa.
Canada Metal Co., Ltd., Toronto.

AIR VALVES

Beaton & Caldwell Mfg. Co., New Britain, Conn.
W. H. Cunningham & Hill, Ltd., Toronto.
C. A. Dunham Co., Ltd., Toronto.
Empire Mfg. Co., Ltd., London and Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
United Brassfounders & Engineers, Ltd., Manchester, Eng.
Wallaceburg Brass & Iron Mfg. Co., Ltd., Wallaceburg, Ont.
Wolverine Ltd., Toronto, Ont.

BATHS, STEEL

Steel Trough & Machine Co., Ltd., Tweed, Ont.

ATMOSPHERIC STEAM HEATING

J. E. Farrell, 210 Galley Ave., Toronto, Ont.

BATHROOM FITTINGS

Canada Metal Co., Ltd., Toronto.
Gendron Mfg. Co., Toronto.

BENDING SPRINGS

W. H. Cunningham & Hill, Ltd., Toronto.

BOILERS, STEAM OR HOT WATER

Gurney Foundry Co., Limited, Toronto.
Lord & Burnham Co., Ltd., Toronto.
Warden King, Ltd., Montreal.

BOILER FEED PUMPS

Smart Turner Machine Co., Ltd., Hamilton, Ont.

BOILER FEED REGULATORS

Empire Mfg. Co., Ltd., London and Toronto.
J. E. Farrell, 210 Galley Ave., Toronto, Ont.
C. A. Dunham Co., Ltd., Toronto.

BOILER STANDS

Fittings, Limited, Oshawa.

BOLTS AND NUTS

Fittings Limited, Oshawa.

BRASS GOODS, VALVES, ETC.

Canadian Brass Co., Ltd., Galt, Ont.
Canada Metal Co., Ltd., Toronto.
C. A. Dunham Co., Ltd., Toronto.
Empire Mfg. Co., Ltd., London and Toronto.
Fittings, Limited, Oshawa.
Galt Brass Co., Limited, Galt.
Kerr Engine Co., Ltd., Walkerville.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
Standard Sanitary Mfg. Co., Ltd., Toronto, Hamilton.
United Brassfounders and Engineers, Ltd., Manchester, Eng.
Wallaceburg Brass & Iron Mfg. Co., Ltd., Wallaceburg, Ont.
Wolverine Ltd., Toronto, Ont.
W. H. Cunningham & Hill, Ltd., Toronto

BRASS PIPE AND TUBE

Canada Metal Co., Ltd., Toronto.
Empire Mfg. Ltd., London and Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
United Brassfounders & Engineers Ltd., Manchester, Eng.
Wolverine, Ltd., Toronto, Ont.

CASTINGS

Canada Metal Co., Ltd., Toronto.
Fittings, Limited, Oshawa.

CELLAR DRAINERS

Galt Brass Co., Limited, Galt.
Empire Mfg. Ltd., London and Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
Standard Sanitary Mfg. Co., Ltd., Toronto, and Hamilton.

CIRCULATORS

J. E. Farrell, 210 Galley Ave., Toronto, Ont.

CHAINS

Fittings, Limited, Oshawa.

CLOSETS

Canada Metal Co., Ltd., Toronto.
Empire Mfg. Co., Ltd., London and Toronto.
Galt Brass Co., Limited, Galt.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
Standard Sanitary Mfg. Co., Ltd., Toronto, Hamilton.
Steel Trough & Machine Co., Ltd., Tweed, Ont.

CLOSETS, CHEMICAL

T. G. Griffith & Co., Ltd., Toronto, Ont.
Steel Trough & Machine Co., Ltd., Tweed, Ont.

CONDENSATION UNITS

C. A. Dunham Co., Ltd., Toronto, Ont.
J. E. Farrell, 210 Galley Ave., Toronto, Ont.
Smart Turner Machine Co., Ltd., Hamilton, Ont.

COUNTRY RESIDENCE EQUIPMENTS

Empire Mfg. Co., Ltd., London and Toronto.
T. G. Griffith & Co., Toronto, Ont.
H. Mueller Mfg. Sarnia, Ont.
Smart Turner Machine Co., Ltd., Hamilton, Ont.

COUPLINGS

Canada Metal Co., Ltd., Toronto.
Fittings Limited, Oshawa.

DAMPER REGULATORS

C. A. Dunham Co., Ltd., Toronto.

DRAINAGE FITTINGS

Canada Metal Co., Ltd., Toronto.
Empire Mfg. Co., Ltd., London and Toronto.
Fittings Limited, Oshawa.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
Standard Sanitary Mfg. Co., Ltd., Toronto, Hamilton.
United Brassfounders & Engineers, Ltd., Manchester, Eng.
Warden King, Ltd., Montreal.

DRAIN PIPE SOLVENT

W. H. Cunningham & Hill, Ltd., Toronto.
Hercules Chemical Co., Inc., New York City.

DRINKING FOUNTAINS

Canada Metal Co., Ltd., Toronto.
Empire Mfg. Co., Ltd., London and Toronto.
T. G. Griffith & Co., Toronto, Ont.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
Standard Sanitary Mfg. Co., Ltd., Toronto, Hamilton.

EJECTORS, STEAM

Kerr Engine Co., Walkerville.
United Brassfounders & Engineers, Ltd., Manchester, Eng.

ENAMELWARE

Amherst Foundry Co., Ltd., Amherst, N.S.
Canada Metal Co., Ltd., Toronto.
Empire Mfg. Co., Ltd., London and Toronto.
Galt Brass Co., Limited, Galt.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
Standard Sanitary Mfg. Co., Ltd., Toronto, Hamilton.

ELECTRIC PUMPING MACHINERY

Empire Mfg. Co., Ltd., London and Toronto.
F. G. Griffith & Co., Toronto, Ont.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
Smart Turner Machine Co., Ltd., Hamilton, Ont.

EXPANSION TANKS

Toronto Hardware Mfg. Co., Ltd., Toronto

FITTINGS

Canada Metal Co., Ltd., Toronto
Empire Mfg. Co., Ltd., London and Toronto.
Fittings Limited, Oshawa.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
Standard Sanitary Mfg. Co., Ltd., Toronto, Hamilton.
United Brassfounders & Engineers, Ltd., Manchester, Eng.
Warden King, Ltd., Montreal.

FLUSHMETERS

Canada Metal Co., Ltd., Toronto.
Empire Mfg. Co., Ltd., London and Toronto.
Galt Brass Co., Ltd., Galt.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
Standard Sanitary Mfg. Co., Ltd., Toronto, Hamilton.
Wolverine Ltd., Toronto, Ont.

FLOOR AND CEILING PLATES

Beaton & Caldwell Mfg. Co., New Britain, Conn.
W. H. Cunningham & Hill, Ltd., Toronto
Fittings, Limited, Oshawa.
Wolverine Ltd., Toronto, Ont.
Empire Mfg. Co., London and Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.

FURNACES

Gurney Foundry Co., Limited, Toronto.
Warden King, Ltd., Montreal.
Hamilton Stove & Heater Co., Hamilton.
Hall-Zryd, Hespeler, Ont.

GASOLINE ENGINES

Empire Mfg. Co., Ltd., London and Toronto

GAS WATER HEATERS

Bastian-Morley, Limited, Toronto.
Empire Mfg. Co., Ltd., London and Toronto
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
Pittsburgh Water Heater Co., Pittsburgh, Pa.
Ruud Mfg. Company, Ltd., Toronto.
Standard Sanitary Mfg. Co., Ltd., Toronto, Hamilton.
W. H. Cunningham & Hill, Ltd., Toronto.

GALVANIZING

Fittings, Limited, Oshawa.

HEAT GENERATORS

Galt Brass Co., Galt, Ont.

HEATING APPARATUS

C. A. Dunham Co., Ltd., Toronto.
Smart Turner Machine Co., Ltd., Hamilton, Ont.
J. E. Farrell, 210 Galley Ave., Toronto, Ont.

HEATERS

Canada Metal Co., Ltd., Toronto.
Lord & Burnham Co., Ltd., Toronto.
Smart Turner Machine Co., Ltd., Hamilton, Ont.
Warden King, Ltd., Montreal and Toronto.
W. H. Cunningham & Hill, Ltd., Toronto.

HEATING SYSTEMS

C. A. Dunham Co., Ltd., Toronto.
J. E. Farrell, 210 Galley Ave., Toronto, Ont.

JAPANNING

Fittings, Limited, Oshawa.

KEROSENE WATER HEATERS

W. H. Cunningham & Hill, Ltd., Toronto
McClary Mfg. Co., Ltd., London, Ont.

LAUNDRY TUBS

The Canada Metal Co., Ltd., Toronto.
Standard Sanitary Mfg. Co., Ltd., Toronto, Hamilton.
Steel Trough & Machine Co., Ltd., Tweed, Ont.

BEAVER BRAND

Porcelain Enamel Ware

—Your Guarantee of Quality—

Beaver Brand Enamelware by its ability to meet the highest demands for service under all conditions, has established itself in the confidence of the public to such an extent that each month witnesses an ever-increasing demand for products of Beaver manufacture.

Amherst Foundry Co., Limited

General Offices and Factory :

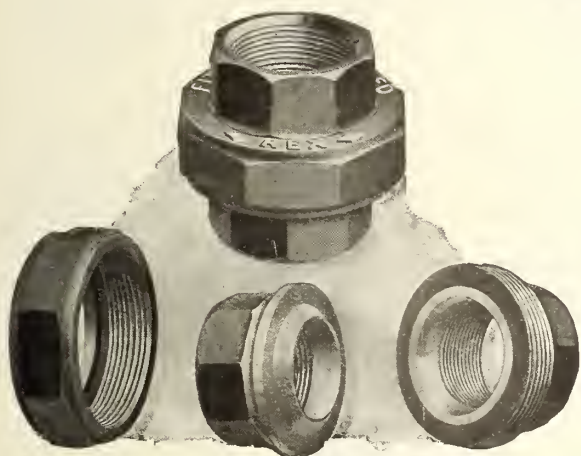
Amherst, N.S.

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MONARCH BRASS MFG. CO.
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Seven Points of "REX" Union Superiority



- 1 "Rex" Unions are tested and guaranteed to stand 250 lbs. working pressure.
- 2 The counterbored ends prevent the first thread becoming battered and permits an easy entrance of the pipe.
- 3 They will not corrode and will withstand vibration, expansion, contraction, fluctuating pressures and other severe conditions.
- 4 The bronze to iron seat, as used in "Rex" Unions, is recognized as the best known combination of metals to be used for permanent joints and where frequent disconnecting is necessary.
- 5 The octagonal shape of the three parts permits of connections being made with an ordinary monkey wrench.
- 6 The uniform diameter of the waterway insures an unobstructed flow and thorough drainage.
- 7 "Rex" Unions can be supplied threaded to either Briggs or Whitworth Standard and can therefore be used for your export trade.

A Proof of "REX" Union Superiority

Canadian Car & Foundry Company, Limited

Montreal, Que.

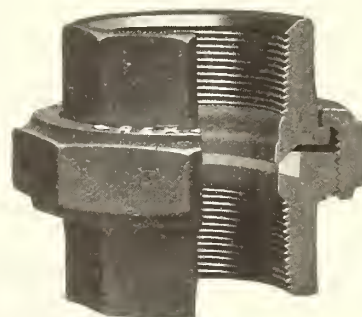
FITTINGS, LIMITED, Oshawa, Ont.

Dear Sirs:—Confirming our conversation with regard to Rex Unions; as you are aware, we have recently purchased from your Company a large quantity of Rex Unions, and have found them satisfactory in every respect. They appear to have more metal in them than other Unions, and we also find them interchangeable; in fact we are very well pleased with them and intend specifying your Unions on our orders where we can consistently do so.

Yours very truly,

CANADIAN CAR & FOUNDRY COMPANY, LIMITED

FITTINGS LIMITED
Oshawa, Canada



Manufacturers of

"DIAMOND" PIPE FITTINGS

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Steel Trough & Machine Co., Ltd., Tweed, Ont.

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Canadian Potteries, Limited, St. John's Que.
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Fittings, Limited, Oshawa.

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ONE OF THE "ARISTOCRAT" FAMILY

As a companion to our "ARISTOCRAT" LAUNDRY TUBS which are being installed wherever Homes are being built, we are now making

THE SE-MENT BATH-TUB

NATURAL CEMENT FINISH

We have produced the "SE-MENT" BATH TUB at a popular price so that as many householders as possible could avail themselves of its advantages.

SIMPLICITY OF DESIGN NEAT APPEARANCE
IMPERVIOUS TO WATER
MOUNTED ON CAST IRON LEGS TO MATCH TUB

All the advantages of a high-priced outfit.

*JUST THE THING for a SUMMER COTTAGE
or for use in Rural Districts.*



Manufactured by

THE TORONTO GRANITE COMPANY

Operated by

THE CANADA METAL COMPANY, LIMITED, TORONTO

The Marvel

Gas Water Heater and Tank Combined

simple, compact, low priced, efficient, the Marvel heater is, beyond dispute, in a class by itself as a hand operated heater.

Except for the lack of the automatic feature it is like its big brother the "Royal" in every respect.

Its elimination of the side-arm heater saves pipes, fittings, labor, space, gas and heat. It is readily sold, easily installed, pays a handsome profit and will not require repairs nor adjustments.

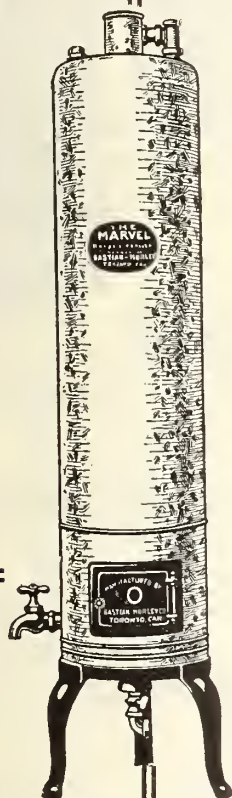
Sold only by or through plumbers.

Write for full particulars.

BASTIAN-MORLEY, LIMITED

125 Hanson St.

TORONTO, CANADA

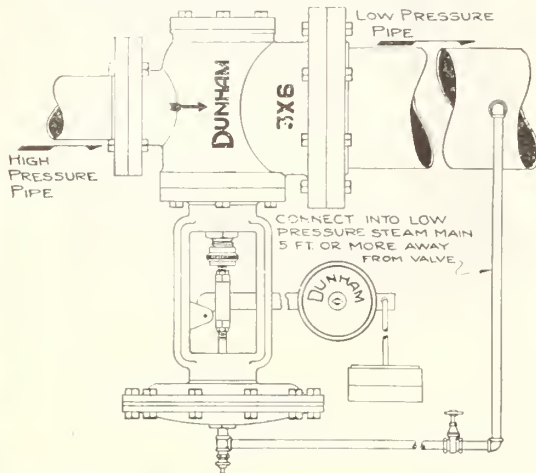


The DUNHAM HEATING SERVICE

(MADE IN CANADA)

Reducing Pressure Valves

The expanded outlet type shown installed permits quick expansion and facilitates reduction from high initial pressure to as low as atmospheric pressure. Also made in straight outlet type and high pressure cylinder type. Details on request.



Accurate Pressure Control for Steam, Air, Water or Oil

Dunham Reducing Pressure Valves automatically reduce varying high pressures to whatever constant low pressure is desired. They do this in one step without the slightest bit of hammering or chattering.

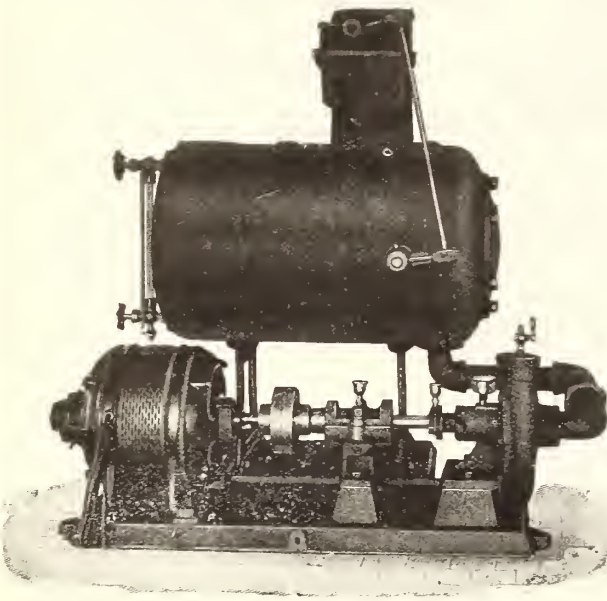
Heating contractors and steamfitters will find these Dunham Valves applicable to a wide range of pressure service. An interchangeability of diaphragms takes care of almost any pressure requirement.

When ordering state maximum and minimum pressure and kind of service. If character of service is not stated valves will be supplied for steam usage.

C. A. DUNHAM COMPANY, LTD.
Toronto - Ontario

Halifax, Vancouver, Winnipeg, Ottawa, Montreal, Calgary.
London, Eng.: 18 St. Thomas St., S.E. 1.

Automatic Feed Pumps and Receivers



W-155

These pumps are very popular among heating engineers and on low pressure systems have superseded the older styles of steam pumps—both in economy and easy operation.

New heating equipment or old ones to be overhauled should include a Smart-Turner W-155, Power Driven Automatic Feed Pump and Receiver.

Our engineering service is available at all times.

Fisher steam specialties—Order from us.

The Smart-Turner Machine Co., Limited
HAMILTON - CANADA

Representatives in Toronto, Montreal, Winnipeg and St. John.

Sell City Conveniences

Those who live in the Country are rapidly learning how easily and cheaply they may have City Conveniences—fresh running water in their kitchens, stables and barns, water-flushed toilets in their houses, by installing Fairbanks-Morse Water Systems.

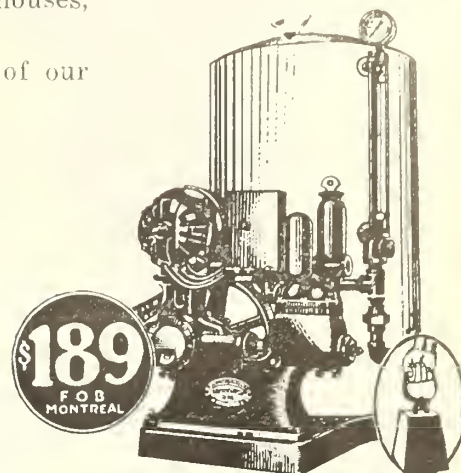
Here is an exceptional opportunity for you to take advantage of our National Advertising of these simple dependable Plants.

FAIRBANKS-MORSE Water Systems

are quiet, efficient and thoroughly guaranteed. Write for our attractive Exclusive Agency offer and learn how easily and profitably you can install them.

**The Canadian FAIRBANKS-MORSE
Company Limited**

St. John, Quebec, Montreal, Ottawa, Toronto, Windsor, Winnipeg, Regina,
Calgary, Vancouver, Victoria



86



Installed at the Fine New School, Timmins, Ont.

The Griffith, All Metal Septic Tank is daily making new friends among sanitary engineers—and no wonder.

The sanitary engineer can instal this tank in a fraction of the time required for a brick or concrete tank; he is not dependent on masons or bricklayers; he and a helper can complete the job in one trip.

Besides the school installation at TIMMINS another installation of general interest is one just made for the new Lawn Tennis Club at Rockcliffe (Ottawa).

Our service department is ready at any time to advise you on installation problems. Make use of its valuable information.

T. G. GRIFFITH & COMPANY, *Manufacturers and Sanitary Engineers*
165 King St. East
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Eastern Ontario Representatives: Shaver Bros., Booth Bldg., Ottawa, Ont.

Maritime Representatives: Eagar Coombs & Co., Halifax, N.S.

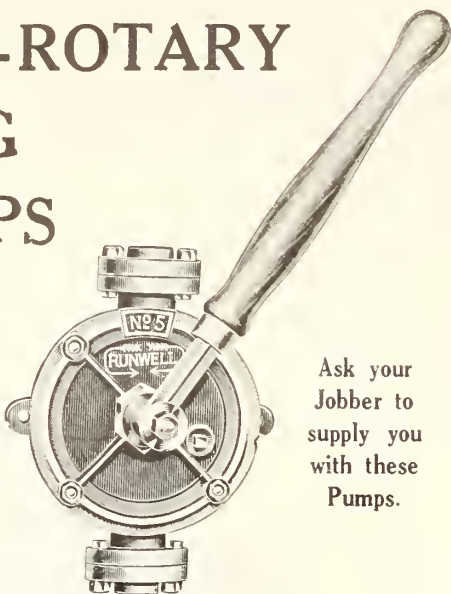
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RUNWELL

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SEMI-ROTARY WING PUMPS

British
Manufacture



Ask your
Jobber to
supply you
with these
Pumps.

Representatives:

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FRANK RAW & CO., 198 Hastings St. W., Vancouver, B.C.
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FREDERICK SARA & CO., Calgary.
ONTARIO, QUEBEC, MARITIME PROVINCES:
UNIVERSAL SUPPLIES, LTD., 212 Coristine Bldg., Montreal.

Take a TRIMO with you!



Probably you are starting off on your way to an important job this morning. If you consider it as important as you should, a reliable wrench will not be overlooked as one of your necessities.

And a "Trimo" is what you need.

The Wrench with the Steel Frames, Nut Guards, and insertable jaw in handle. Made with Wood Handles in 6", 8", 10", 14" sizes.

Made with Steel Handles in all sizes.

Trimont Manufacturing Company

55-71 Amory Street

Roxbury (Boston), Mass., U.S.A.

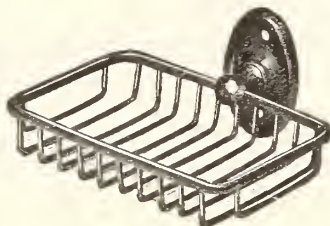
CANADIAN REPRESENTATIVE:

GEO. P. FRASER, 28 Temple Ave.
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A Complete Line Sells Better

"In many lines it has been proven that the dealer who makes the best sales record is the one who has a complete line of a varied group of products under one brand name, rather than the dealer who separates his orders among several manufacturers."

—Printers' Ink.



Experience has no doubt proven to you that the leading line of bathroom fittings and hardware specialties is the Gendron line.

The Gendron Mfg. Co., Limited
Duchess Street, Toronto

CHRISTIE UNIT SYSTEM SEPTIC TANKS

Convenience for ALL. Thousands of homes can be modernized. Any place where there is NOT a Public Sewer CHRISTIE'S UNIT SYSTEM SEPTIC TANK is the only correct method of disposal.

HEALTHY, CONVENIENT, ECONOMICAL

Made of Reinforced Concrete. Can be shipped anywhere. Easy to install. Low in price. Both syphon and overflow type. No job too small. None too large. We have a type for both heavy and light soils.

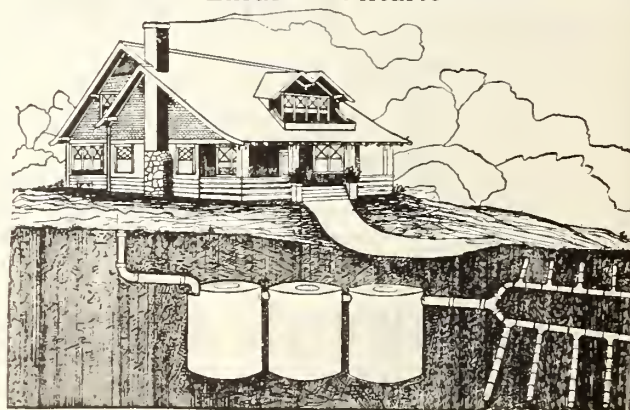
HOMES, SCHOOLS and SUMMER HOUSES.

Write for catalogue and dealers' price list.

Manufactured By

Christie Concrete Products Co.

Lindsay, Ontario



PATENTED



DESOLVO
TRADE MARK
Sewer and Drain
Pipe Cleaner
NET WEIGHT 15.02
Manufactured by
THE CHAMBERLAIN COMPANY
PITTSBURGH, PA.

KEEPS DRAIN PIPES CLEAN
DESOLVO
Use A Can Every Month

Cleaning clogged drain pipes has been "thank you" work for the plumber. Now he makes a profit, he sells each customer a can of Desolvo every month. It clears clogged drain pipes almost instantly and keeps them sweet and clean. Your jobber's salesman can tell you—ask him.

K-K cleans closet bowls—keeps them sweet and sanitary without scrubbing. A welcome friend to every customer and a profit maker for you.

The Chamberlain Desolvo Co. Ltd.
Toronto, Canada



Burnham Boilers

Let The Lie Lie

This square shouldered, broad chested Twin is about 71 inches wide and but slightly over 80 inches high.

If a thing isn't so, and you find it out, and go right on letting folks believe it's so, is that a lie? If it is, then we are letting the lie lie, by not changing the ratings on the Burnham Twin Sectional Boiler. The ratings are now altogether too low, according to the work the boiler did over and over again during last winter's severest of tests. But we are not going to jack up the ratings. We prefer to have it do more than we claim it will do.

Lord & Burnham Co. Limited of Canada
Boiler Department

Harbor Commission Bldg.,
Toronto, Ont.

Factory:
St. Catharines,
Ont.

Burnham
Cozy
Comfort
Heat
BB

Strong - Handsome - Durable



JENKINS Bronze Swing Check Valve

**Equipped with Renewable
Composition Disc**

These Valves have the Jenkins Renewable Disc feature. Angle of seat assures ready opening at low pressure and the shock of closing under high pressure is absorbed in the line piping.

Disc lifts well out of passage. Hanger is heavy and has large bearing surface for carrying disc holder.

Valve illustrated is Fig. 475, Standard Pattern, suitable for 150 pounds working pressure.

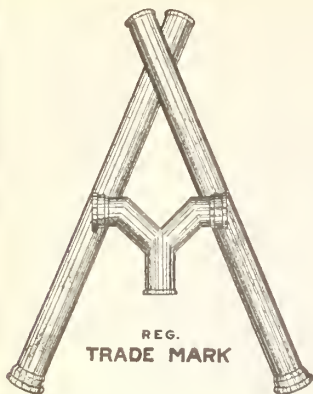
Catalog No. 9 describes valve in detail. Write for free copy.

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Always marked with the "Diamond"
Jenkins Valves
SINCE 1864



USE

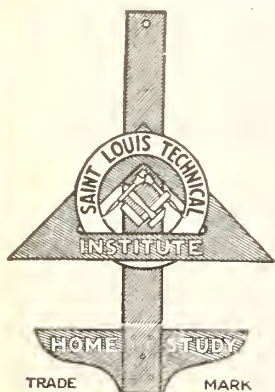
TESTED Soil Pipe

IT COSTS NO MORE AND YOU KNOW THE JOB IS RIGHT

Manufactured by

FORWELL FOUNDRY, LTD.

KITCHENER, ONT.



Are These The Opportunities You're Looking For?

Fan Heating and Ventilating Engineering is the pinnacle of all other forms of heating, and of all branches of steam fitting and sheet metal work. It prepares you for:

1. For Employers it enlarges their business opportunities 100%.
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Which of These Are You Working for?

Full Information Free.

Select Your Course.

☐ Fan Heating and Ventilating Engineering. ☐ Sheet Metal Design and Pattern Drafting.

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ST. LOUIS TECHNICAL INSTITUTE

4543 Clayton Avenue

O. W. Kothe, Prin.

St. Louis, Mo.



Style R.

Advantage No. 3

Hangers are absolutely invisible when installed.

For ANY style radiator; ANY type wall construction. Write for the whole list of their advantages.

Healy-Ruff Co.

Dept. 23, Minneapolis, Minn.

"Made in Canada"

A Suggestion

"Medium Weight soil pipe has a round bead pattern at the hub to distinguish it readily from the Extra Heavy weight pipe which has a flat bead pattern.

This is only a matter of design, one being as strong as the other.

We respectfully suggest the advisability of continuing the excellent practice of invariably specifying medium weight pipe in the round bead pattern."

TORONTO HARDWARE MFG.,
CO., LIMITED

Sanitary Engineer

Dominates in Its Field

Because—

SANITARY ENGINEER is the only plumbing and heating paper in Canada giving an up-to-date market service in each issue, from Montreal, Toronto and Winnipeg.

SANITARY ENGINEER has exclusive rights for publishing in the plumbing and heating field the splendid articles by Frank Stockdale, America's outstanding merchandising expert.

SANITARY ENGINEER uses more illustrations in the editorial section than any other Canadian paper in its field.

SANITARY ENGINEER is running the most complete and practical series on sewage disposal of any publication in Canada.

SANITARY ENGINEER is the only paper running in each issue a full page illustrated article on sheet metal work.

SANITARY ENGINEER is the only paper running a classified Buyers' Guide in each issue.

SANITARY ENGINEER runs the most up-to-date news service from coast to coast, outnumbering other publications in its field by more than five to one in the number of news items carried.

SANITARY ENGINEER'S editorial policies are conducted along sane, practical lines, based upon the experience of the very best authorities in their respective lines in Canada.

SANITARY ENGINEER is printed on better paper stock than any other paper in its field, thus showing up illustrations to better advantage.

SANITARY ENGINEER is uniform as to make-up, both in its editorial and advertising pages, thus making it convenient for readers.

SANITARY ENGINEER'S news of the trade, convention notes, convention reports, articles on legislation, are the brightest, breeziest, best-written and most complete reports issued to the Canadian plumbing and heating trades by any publication either in Canada or the United States.

SANITARY ENGINEER takes the lead in providing the trade with new, practical ideas, dealer helps, and proving through the printed word that certain plans are being carried out successfully by leaders in the industry.

SANITARY ENGINEER reaches the leading members of the plumbing and heating trade by paid invitation. Copies are not sent out indiscriminately. The paper is of real practical value to its subscribers, and they willingly pay a fair subscription price for it. This ensures reader interest and attention.

SANITARY ENGINEER carries in each issue a large volume of high-class advertising, and most of the representative manufacturers and supply houses use its pages regularly to carry their messages to the Plumbers and Sanitary and Heating Engineers of Canada.

SANITARY ENGINEER maintains, in addition to regular editorial and advertising staffs, correspondents located in the most important parts of Canada, and in this way provides readers with the splendid news service which is not duplicated by any other publication.

Sanitary Engineer
Plumber and Steamfitter of Canada

Member A.B.C.

The Trade's Favorite Paper Since 1907

153 University Avenue, Toronto, Canada

Wanted

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Advertisements under this heading 3c per word for first insertion; 2c for each subsequent insertion.

Where answers come to Box number in our care to be forwarded, 5 cents extra per insertion must be added to cover postage, etc.

Contractions count as one word, but five figures (as \$1,000), are allowed as one word.

Rates (payable in advance). When panels are desired a charge of \$2.50 is made for a panel 1 inch deep by 2 $\frac{1}{8}$ inches wide. Minimum charge for any ad. \$1.00.

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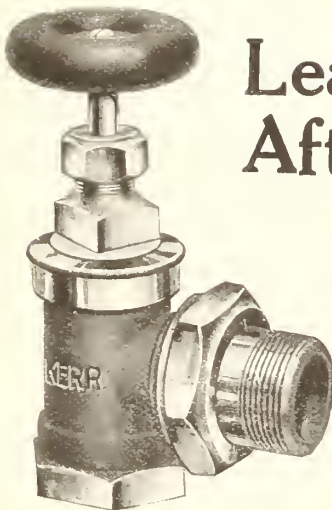
FOR SALE

TAYLOR SAFES FOR SALE—RARE OPPORTUNITY to secure a safe at small cost. They are in splendid condition. Inside dimensions and prices are as follows: 15 in. deep, 2 ft. 6 in. wide, 3 ft. 11 $\frac{1}{2}$ in. high, fitted with built-in compartment. Price \$250.00. 18 in. deep, 2 ft. 8 in. wide, 4 ft. 5 in. high, fitted with steel compartment. Price \$200.00. Apply Box No. 791, Sanitary Engineer, Toronto.

Sanitary Engineer

is the logical medium to use if you have a message for the Plumbing and Heating trade of Canada

KERR VALVES



No. 39.

Leak-Proof After Years of Use

There is only one way to get endurance in Radiator Valves—and that way is to buy valves that have the stuff built into them to stand up in service, year after year.

Kerr Radiator Valves are well finished and plated; mounted with best quality black wood wheels and fitted with the "Radium Disk." Each valve is thoroughly tested and packed before shipment.

Order Kerr Valves from your Jobber



No. 31.

The **KERR ENGINE COMPANY**
LIMITED

WALKERVILLE

Valve Manufacturers

ONTARIO

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Cutter Wheels



That
CUT

For Trimco, Stillson
and Barnes

Wolverine Fine Edge Cutter
Wheels, Pins and Rollers are
Guaranteed.

If you are not satisfied with
quality or length of service
rendered, we will replace
without charge.



76 Nelson St. Toronto-

It Pays to stock Wolverine
Products

Built for Durability
and Service

WROUGHT PIPE

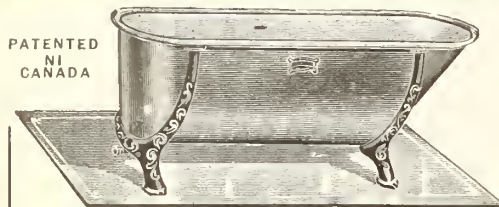


Suitable for the approaching period of building activity, road construction, etc. This is a line of great importance in making successful, profitable contracts. Our C. T. Brand of Wrought Pipe has been

THOROUGHLY INSPECTED by practical, experienced men. It is tested to 600 lbs. hydraulic pressure, and branded with our trade-mark. We carry this line of reliable pipe in sizes 1/4-in. to 4-in. Black or Galvanized. We also manufacture nipples and couplings, black and galvanized, in all sizes.

Ask your Jobber for C. T. Brand Wrought Pipe

Canadian Tube and Steel Products Co., Ltd.
Operating Canadian Tube and Iron Co., Limited
Works at Lachine Canal, Montreal



**Better
Selling
Value
Than Ever**

We have equipped our Steel Baths with Pressed Steel Removable Legs and 3 inch Roll Rim around the top, for which we have secured a Canadian Patent. This Roll Rim adds greatly to the selling value of

TWEED ENAMELLED STEEL BATHS

They now look like the expensive cast enamel baths but are the same price as before. Our new patent Roll Rim Enamelled Steel Baths are now ready for shipment—Order samples.

The Steel Trough & Machine Co. Ltd. Tweed, Ont.

Toronto Office—229 King St. W. A. R. Wooldridge, Representative.

Montreal Office—10 Victoria St. G. M. Price, Representative.

Plumbers and Steamfitters—

There is only one kind of satisfactory tool and that is one that is in perfect working order. Inefficient tools are a direct liability to you.

Gather up your broken tools to-day, send them to us and we will quickly put them in shape for you.

CANADIAN SERVICE STATION
FOR BEAVER TOOLS

The Pipe Tool and Repair Co.

Adelaide St. W.

Toronto, Ont.

Repairmen to the Canadian Plumber and Steamfitter.



Easier to attach
More permanent
Cost less

Tapped Closet Bend



The Difference in Advertising Is the Difference in Men

Of itself, advertising is little. And the differences in it are the differences which exist in men.

Just as some men are strong and virile and interesting, so is some advertising. And just as some men are ineffectual and weak and boring, so is some other advertising.

"Does it pay to advertise?" It pays those men who are keen enough students of the public to make it pay them. It pays those men who are truthful, sincere, interesting and believable.

It pays the men whose product deserves the payment, whose brains are keen enough to organize for success and judge enough of the human mind to know how to tell their story with sincerity and interest.

So when you judge advertising, judge it by how it is used and by whom—not of itself and of itself alone.

Remember, an ugly man looks just as ugly in a mirror.

Dart Union Pipe Couplings are **Bronze to Bronze** *(Both Face and Seat)*

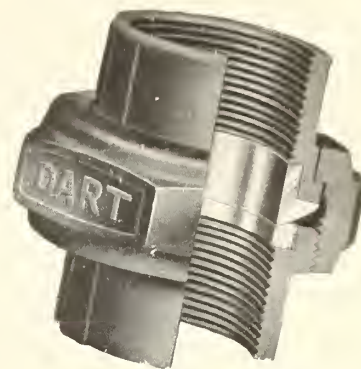
This feature prevents deterioration at the vital point, and is the Reason Why
Dart Unions Stay Tight

—permanently

Dart Unions are really Economical and Troubleproof. Have you tried them?

Sold by all Jobbers.

Dart Union Co., Limited, Toronto, Ont.



The Pittsburg Line Is Complete

THERE are eighteen different sizes and types of Pittsburg Heaters—one designed for every water heating purpose—to fill the hot water requirements perfectly, to give a twenty-four-hours-in-the-day service and to *heat the water at the cheapest possible rate per gallon.*

Because the line is complete—because you can fill the bill exactly for every customer—because there are a large number of definite points of superiority that you can point out—Pittsburg Water Heaters sell readily.

And we are making sales easier. Write for information on our "Selling the Consumer" campaign—a campaign that is at the disposal of Pittsburg dealers everywhere and that has proven a great success in a score of different localities.

Pittsburg Water Heaters are made and guaranteed by the largest and the oldest manufacturer of copper coil heaters in the world, with a reputation extending over a quarter of a century. Each one is backed by the Guarantee of the Pittsburg Water Heater Company.

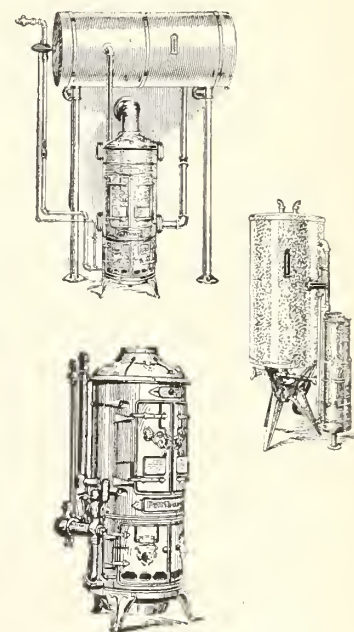
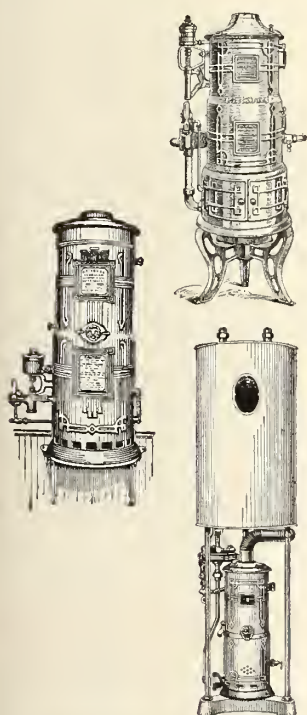
PITTSBURG WATER HEATER COMPANY
Pittsburgh, Pa.

Canadian Distributor, E. M. PATTERSON, Sales Agent
504 Spadina Avenue, Toronto

*Lion Tank Heaters are made and sold in Canada by the
Eriez Stove and Manufacturing Co., Ltd., Montreal*

Pittsburg
AUTOMATIC GAS
WATER HEATERS

"If it's done with heat, you can do it BETTER with gas"





One Mechanical Unit

The primary business of a closet tank is to control water; to measure it and to shut off tight against it.

To ensure its proper functioning, therefore, the New Design Vitro is always sold complete with fittings. These fittings—Vitro fittings all of them—are installed by us and sternly tested at the factory before being put on the market.

The New Design Vitro has other virtues too. It has beauty of line and sheer white gleaming beauty of finish that will not crack nor discolor. But the great virtue, the primary one, it has in the highest degree. It measures water properly.

—And as usual is leading in sales every other tank on the market.

Your Jobber Sells Them

Galt Brass Company, Limited

GALT

ONTARIO

VITRO
NO TROUBLE
TANK

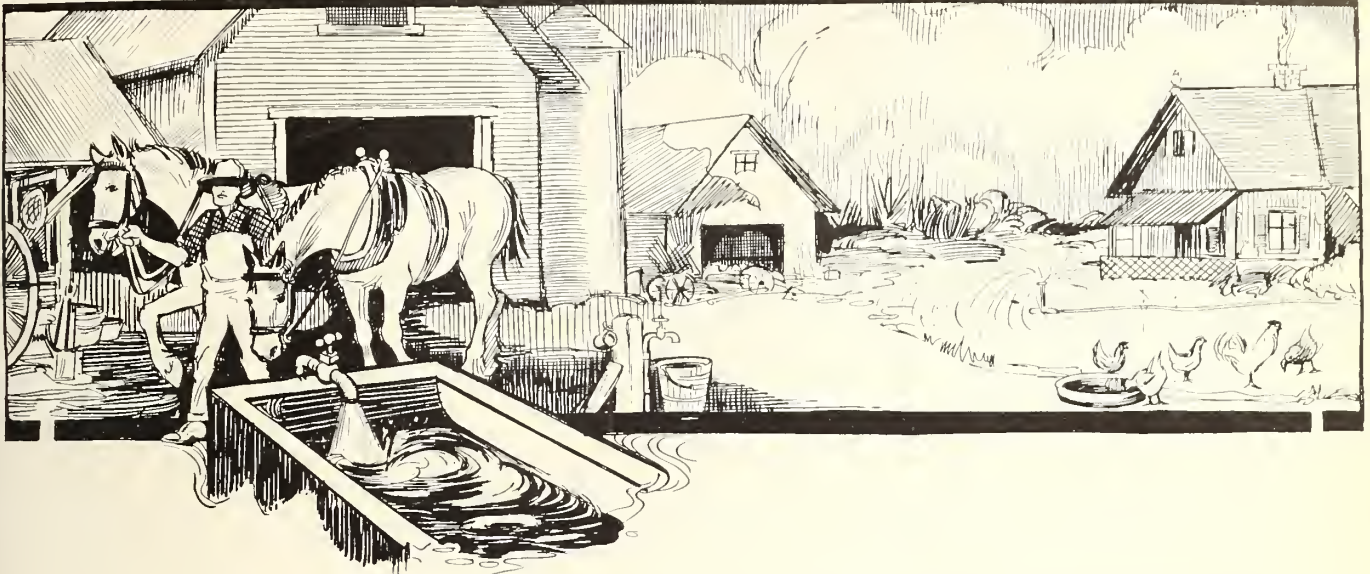
Sanitary Engineer

Plumber and Steamfitter of Canada

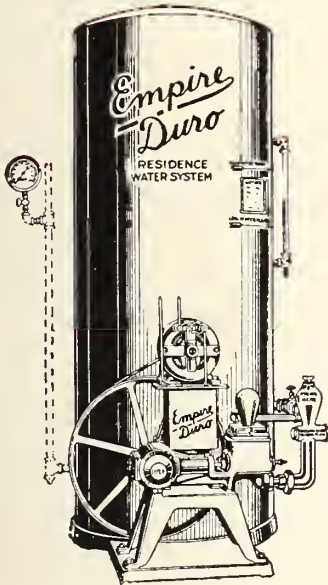
Vol. XVII.

PUBLICATION OFFICE, TORONTO, JUNE 15, 1923

No. 12



Sell Empire Duros to Farmers—



Empire Duro were first to incorporate 20 features which have made Empire Duro the easiest selling water supply system. These features are explained in our folder. Write for it.

With the installation of an "Empire Duro" Water Supply System you instal a farm necessity, a complete line of plumbing fixtures, and with every satisfied customer more installations follow.

Empire Duros may be operated by gasoline or electric power.

Cash in on the sales created by our National and Direct-by-mail advertising campaign appealing to Farmers. We need your co-operation to make this campaign a success.

Empire Duros are backed by years of experience in specializing in the manufacture of household water supply systems.

Send for catalog No. 5 and Price List "B" showing the profits which may be had by working the farm trade.

Empire Brass Manufacturing Co., Limited
London and Toronto

For Beauty of Design

THE

“Pussyfoot”

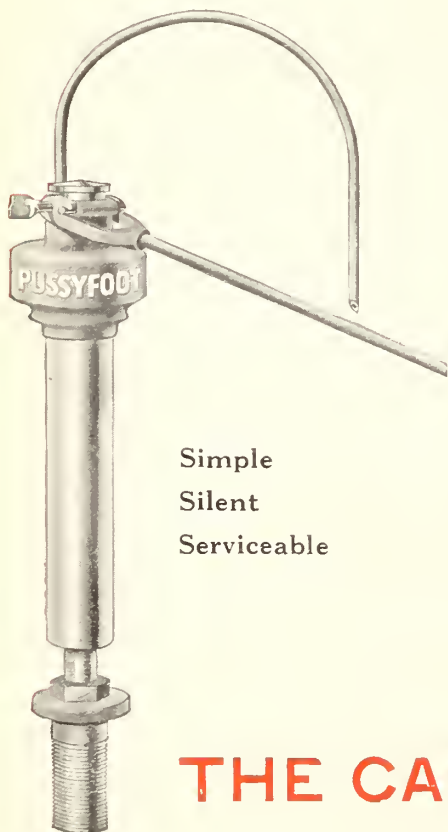
Closet Tank

Still shows the way—and the attractive appearance, wherever one is installed means added value to the property.

There is also the satisfaction of *knowing* that the mechanical parts inside the



Tank, all of which are manufactured from the highest grade material, are in keeping with the high standard of the Design.



Simple
Silent
Serviceable

The New Valve

Finds favor everywhere because of—

Its extreme silence in operation.

Its rapidity in filling the tank.

Its simplicity of mechanism.

A “Pussyfoot” outfit costs you no more although it is worth far more than the price it is sold at. Specify to your Jobber and insist on getting it.

THE CANADA METAL COMPANY

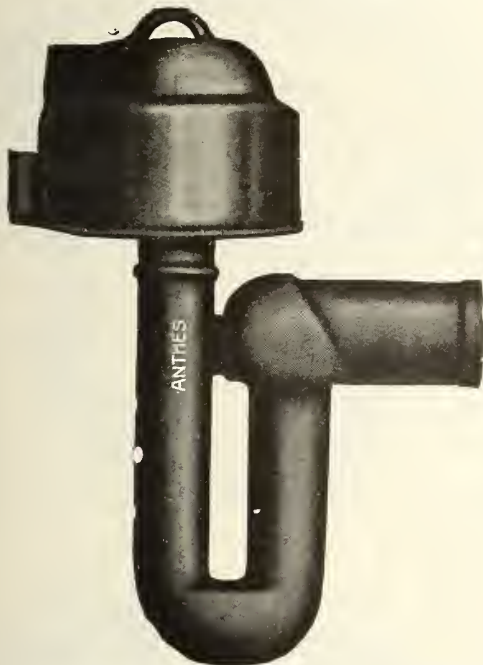
LIMITED

Montreal Hamilton TORONTO Winnipeg Vancouver



Going after it and Keeping after it

THE ANTHES SYPHON



The heart of the disposal system

Rural plumbing is coy and not to be easily won. Little progress can be made at the first or second effort. It is necessary not only that you should go after this business but that you keep after it.

Your task is being made easier by reason of the propaganda we continue to circulate; publicity that stimulates public interest in sanitation; publicity that means more plumbing for you to sell and instal.

By capitalizing this propaganda you can add largely to present earnings.

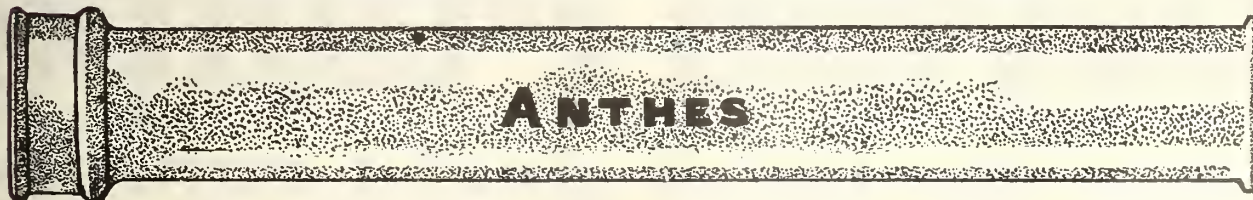
Go after the rural trade and *keep* after it.

Anthes Foundry

Limited

Toronto and Winnipeg

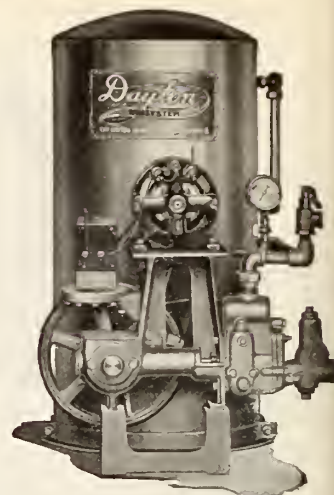
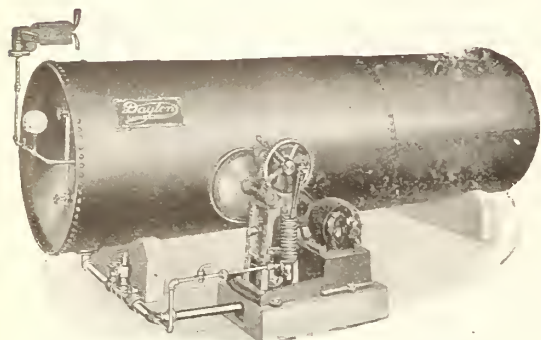
Manufacturers of Cast Iron Soil Pipe and Fittings



Sell "Dayton" Pumps

Under the New

"Dayton" Plan



We have been preparing this plan for months. It is different. It works simply, too—like this:

You send us a list of twenty-five or thirty people who can profitably use a "DAYTON" Water Supply System. We then mail a series of five handsome advertisements to these prospects—advertisements that will interest, convince and sell. Each mailing piece carries YOUR name and address on a return post card. Our name is not shown.

We pay postage and all mailing expenses.
You get all the enquiries.
You close all the sales.
You don't risk a cent.
You are bound to profit.

Send in a list of prospects today, or if you wish to know more about this plan, just send the coupon and say you are interested. We will send full particulars by return mail.

T. G. GRIFFITH & COMPANY

Manufacturers and Sanitary Engineers

165 King St. E. - Toronto, Ont.

Distributors in Ontario for

THE DAYTON PUMP & MANUFACTURING CO.

Dayton, Ohio, U.S.A.



It's not a "DAYTON" without this Trademark.

Send me the "DAYTON" Water System Catalog and details of the "DAYTON" Selling Plan.

COUPON

Name
 Street
 Town
 Prov.

Dayton Pumps

Make the water do the running



No. 10-X "Lakeside"



No. 307-X "Premier"



No. 127-X "Trenton"

We Make Extended Lip Closets In all 3 Types

Modern sanitary requirements call for the installation of the Extended Lip closer in all public buildings, and many now appreciate as well the advantage of this type of fixture for the private toilet-room.

Our "Lakeside" Syphon Jet is unquestionably the best closet of its kind procurable. If however a less expensive installation is being catered to, the "Premier" Reverse Trap Washdown, or even the "Trenton" ordinary syphon action washdown will give excellent satisfaction.

All of these closets are of course made of Canadian Solid Vitreous ware, and therefore their installation ensures a lifetime of unchanging service.

CANADIAN POTTERIES
LIMITED
SAINT JOHN'S
QUEBEC

Sales Handled Exclusively through
Recognized Jobbers in Plumbing Supplies.

Accurately Machined Pipe Fittings



Crane Limited has advertised extensively the fact that their fittings are tapped and threaded true to gauge and correct to angle.

The accompanying cut illustrates this point clearly. Note the number of fittings and joints and the perfect alignment of all piping.

Crane plumbing and heating equipment is built in types and sizes to meet any requirement, and when properly installed will insure long life under the most severe conditions.



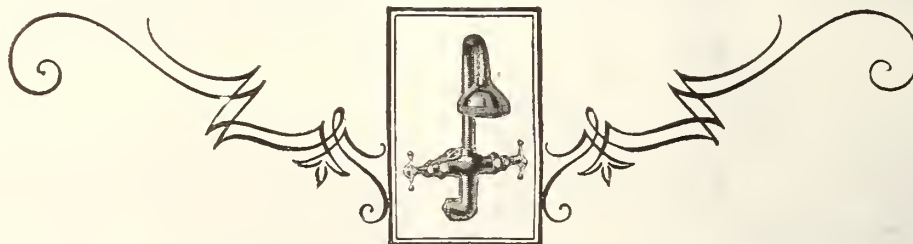
TYPICAL CRANE DRAINAGE PIPING IN A MODERN INDUSTRIAL PLANT

CRANE

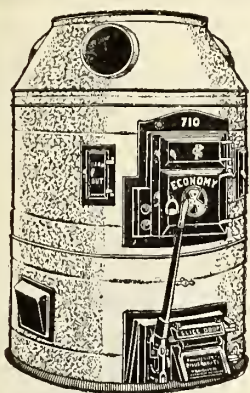
CRANE LIMITED, GENERAL OFFICES: 386 BEAVER HALL SQUARE, MONTREAL
CRANE-BENNETT, LTD., HEAD OFFICE: 45-51 LEMAN STREET, LONDON, ENG.

*Branches and Sales Offices in 21 Cities in Canada and British Isles
Works: Montreal, Canada, and Ipswich, England*

CRANE, LIMITED, MONTREAL. CRANE-BENNETT, LTD., LONDON
CRANE EXPORT CORPORATION: NEW YORK, SAN FRANCISCO
CIE CRANE, PARIS



Crane "Telra" Wash Sink Faucet



Pease

Now offers you a greater variety of heating goods than any other firm of its kind in Canada. Read the following list; then file this page away for future reference.

FURNACES

Economy (Regular Pattern). Seven sizes.
 Economy Pipeless Furnaces.
 Economy Combination Furnaces for Warm Air and Hot Water Heating.
 Economy Wood-Burning Furnaces (4 sizes).
 Economy Wood-Burning Pipeless Furnaces.
 Economy Heavy Duty Furnaces for Schools, Churches and other large buildings.
 Brampton Furnaces (Regular Pattern). 5 sizes.
 Brampton Pipeless Furnaces.

REGISTERS

A complete line such as side wall, floor, wafer, round, wooden gratings, wire grilles, duplex gratings for pipeless furnaces, partition registers for pipeless furnaces, gratings for furnace casings, etc.

TINSTOCK

All tin or galvanized iron fittings, pipe, etc., required for warm air heating work.

May we have the opportunity of filling that next order which you are about to place? It will have prompt and careful attention and you will receive courteous treatment from every department of our organization.

Get in touch with us to-day for prices.

PEASE FOUNDRY COMPANY

LIMITED
TORONTO

PEASE WESTERN FOUNDRY

LIMITED
WINNIPEG

BOILERS

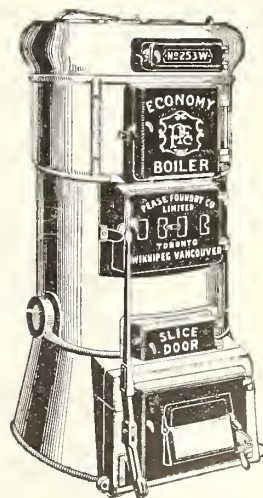
Economy Round Boilers.
 Arco Round Boilers.
 Mogul Round Boilers.
 Ideal Square Boilers.
 Safford Square Boilers.
 Economy Steam Heaters and Ventilators.
 Ideal Smokeless Boilers.
 Steel Tubular Boilers (Kewanee Type).
 Bungalow Heaters.
 Tank Heaters.

RADIATORS

Economy Radiators.
 Peerless Radiators.
 Safford Radiators.
 Vento Radiators.

SUNDRIES

Such items as fittings, pipe, valves, electric fans for ventilation, gas burners for furnaces, automatic water pans, pipe covering, boiler covering, temperature boosters, boiler Neverleak, etc. In fact we handle every item that any heating contractor may require.



More Money for the Plumber and Pump Dealer!

THE Delco-Light Company's Electric Pump proposition is the best ever offered the plumber and pump dealer. It means more sales, quality sales, bigger profits.

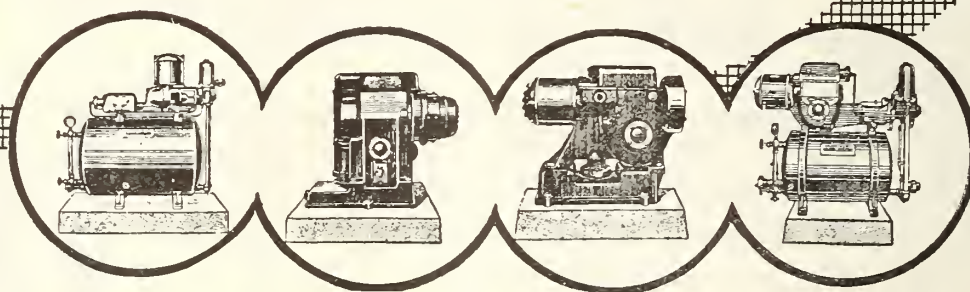
Sell Delco-Light Electric Pumps and you will be in position to fill any need that may come up. There are 26 individual styles and sizes; for deep wells or shallow wells; large capacity or small capacity; A. C. or D. C. service. A size and style for every need! For deep wells either the $\frac{1}{4}$ H. P. or the $\frac{1}{2}$ H. P. of the pitless weather-proof type.

Sell Delco-Light Electric Pumps and you sell at a right price, you sell a pump that is right—built right, built of quality materials, and, above all, backed by a Company known and internationally famous for the quality of its products.

The Delco-Light distributor has an attractive proposition for the pump dealer and plumbing contractor. Write your nearest distributor about it now—**TODAY!** It means dollars in your pocket.

Delco-Light Co. of Canada, Limited
Toronto, Ontario

Electrical Systems, Limited
173 King St. East, Toronto, Ont.



DELCO-LIGHT

Water Systems

For Country and City Homes

Produce Better Jobs

With Perfection Plates and Valves



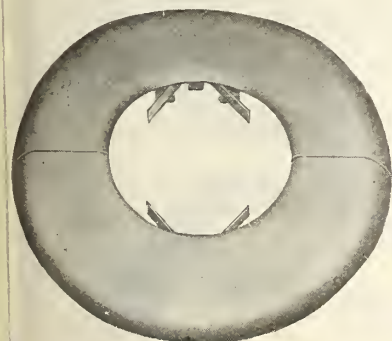
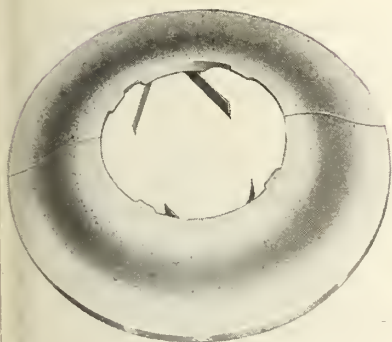
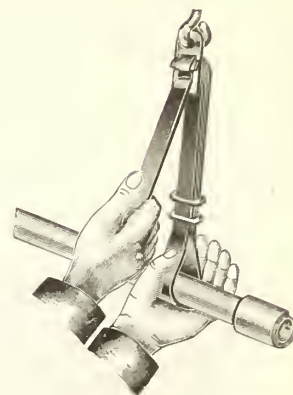
Neater, better looking jobs are produced by the addition of Perfection Floor and Ceiling Plates. They make a piping job's outward appearance measure up to its concealed excellence.

Obtainable in cast iron, steel and brass, handsomely finished in black or nickel. Sizes range from $\frac{1}{2}$ " to 10" in over 25 styles, to meet every requirement.

Heating men know the guarantee of perfect operation implied by the use of Perfection Automatic Air Valves on a heating job. They prove their strength and worthiness by meeting every heating condition with surprisingly fine results.

Pipe Hangers, sturdily made and thoroughly tested are a feature of the B. & C. line. Obtainable in the following styles: Adjustable Strap, Malleable Hook, Jumbo, etc.

Specify and install Beaton and Cadwell Specialties on your next job. Write for complete details to-day.



"Genuine"



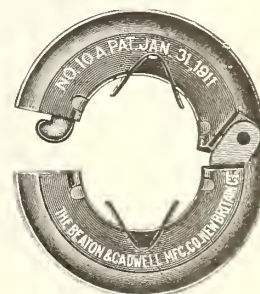
Perfection
Line

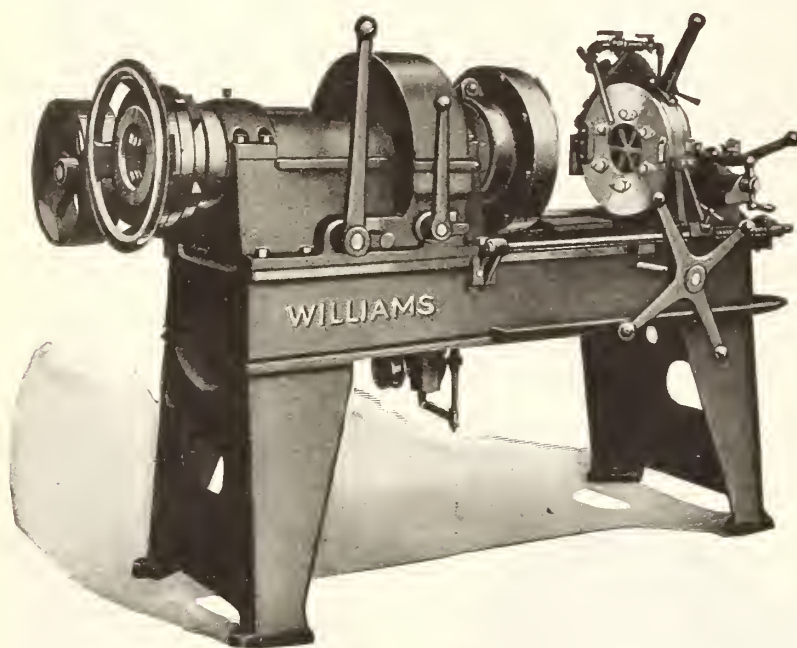
Eastern Agents: J. R. DEVEREAUX & CO., 602 New Birks Bldg., Montreal.

Western Agents: A. E. HINDS & CO., Galt Building, Winnipeg.

AMES BROS., 325 Howe St., Vancouver, B.C.

Ontario Agents: L. N. VANSTONE, 8 Wellington St. E., Toronto, Canada.



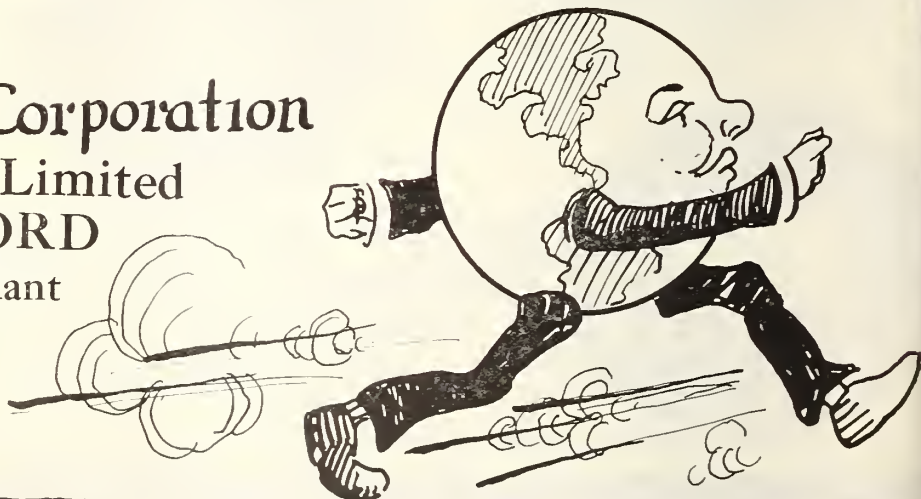


That the Williams is keeping pace with the world's hurry is best proven by the fact that it will cut, thread and ream your pipe with ease and dispatch and do it in one-tenth of the time it now takes by hand and incidentally do it a whole lot better.

Don't let any illusion about first cost bother you. Williams have a time payment plan that makes Williams earn its own cost.

Williams book "Smashing Costs and Boosting Profits" tells all about pipe cutting and threading costs. Send for it.

Williams Tool Corporation
of Canada, Limited
BRANTFORD
American Plant
Erie, Pa.



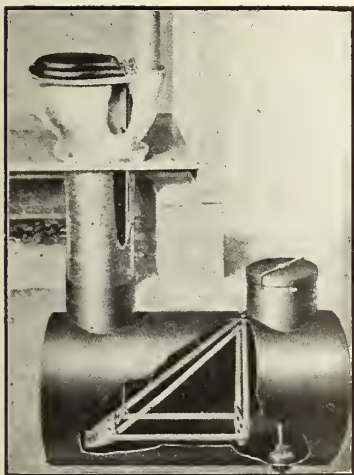


Dayton Unisystem

Dayton systems can be had in capacities of 100, 160, 240, 350, 720 and 900 gallons per hour. Tanks any size.



The Griffith All Metal Septic Tank. No cement, no bricks, no delays. The plumber installs it and makes connections in one visit. A money maker.



The Waterbury

The last word in Chemical Systems. Guaranteed Absolutely Odorless. Packed complete with all fittings. Write for prices.

Make Summer Time Sales of Griffith's Sanitary Systems

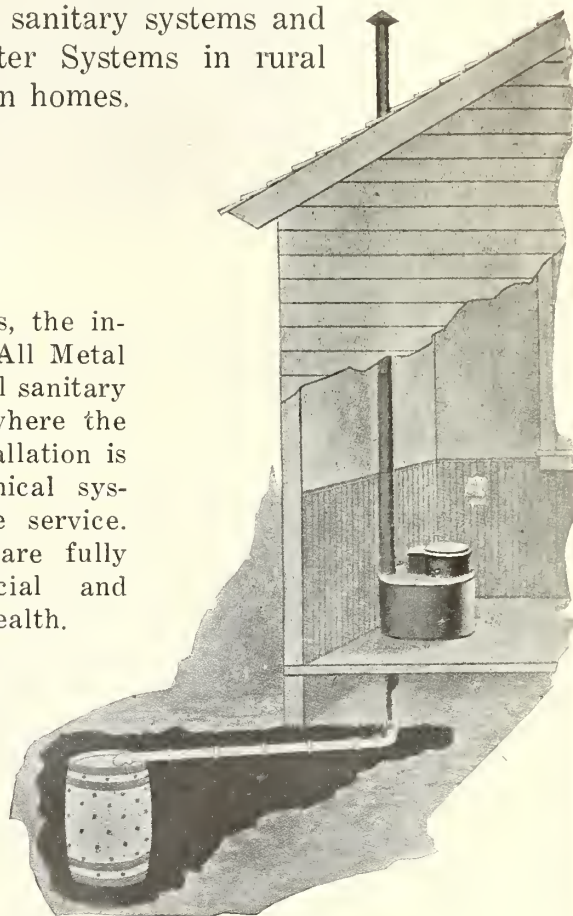
Summer Cottages, Summer Hotels, Country Camps—anywhere and everywhere that people congregate for summer time outings there is a market for some one or other of Griffith's Sanitary Systems.

This business is available to the plumber who **goes after it**. It supplements the regular business of installing sanitary systems and Dayton Water Systems in rural and suburban homes.

We recommend, always, the installation of a Griffith All Metal Septic Tank as the ideal sanitary disposal system; but where the expense of a tank installation is a deterrent, our chemical systems provide adequate service. All Griffith Products are fully approved by Provincial and Municipal Boards of Health.

Our service department will gladly furnish you advice on any sewage disposal problems. We do all the worrying, all the planning. You have only to sell the goods.

Write today for full particulars



The Junior

A smaller system than the Waterbury; suitable for installation in an outhouse or lean-to. Odorless, sanitary, convenient.

T. G. Griffith & Company

Manufacturers of Sanitary Equipment

165 King St. East, Toronto, Ontario

Eastern Ontario Representatives:
Shaver Bros., Ottawa, Ont.

Maritime Representatives: Eagar
Combs & Co., Halifax, N.S.



A Hand the Plumbers Should Play

Canadian men and women are rapidly being educated to the modern ideas of comfort and better living, with better plumbing fixtures in bathrooms and kitchen as the foundation. The plumbers of Canada should play a strong hand in this educational effort if the Canadian public, as well as the plumbing industry are to reap full benefit. Preach the idea of more bathrooms and better kitchens.

Our advertising is helping you

We are back of this splendid "educational" scheme with a strong campaign of advertising which appears regularly in Canada's finest publications. Hook up with this effort of ours. It certainly pays.

Standard Sanitary Mfg. Co. Limited

General Office and Factory: Royce and Lansdowne Aves., Toronto, Ontario

TORONTO SHOWROOM: 55-59 Richmond Street East	WINNIPEG SHOWROOM: 76 Lombard Street	HAMILTON STORE: 20-28 Jackson Street West
MONTREAL: 705 McGill Bldg.	CALGARY: 325 Eighth Avenue West	VANCOUVER: 860 Cambie Street

SANITARY ENGINEER PLUMBER AND STEAMFITTER OF CANADA

ESTABLISHED 1907

PUBLISHED TWICE MONTHLY

Vol. XVII. PUBLICATION OFFICE: TORONTO, JUNE 15, 1923

No. 11

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The MacLean Publishing Company, Ltd.

JOHN BAYNE MACLEAN, *President.*H. T. HUNTER, *Vice-President.*H. V. TYRRELL, *General Manager.*

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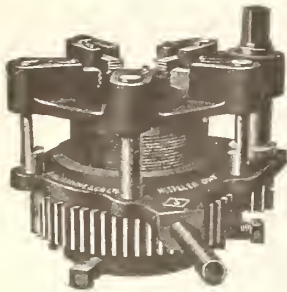
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Sanitary Engineer

Plumber and Steamfitter of Canada

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and
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Vol. XVII

TORONTO, JUNE 15, 1923

No. 12

Govt. Demonstration Truck Doing Good Work in Ontario Counties

Thirty Towns and Villages Already Visited in Seven Counties—
People Drive Many Miles to Hear Lectures, Procure Information
and See Practical Demonstrations—Questions Answered, and
Prices Quoted for Complete Outfits

Written specially for Sanitary Engineer by EDWIN NEWSOME, Consulting Sanitary
and Heating Engineer and Lecturer in Attendance at the Truck

THERE never was such a valuable work carried on before in the interest of sanitation in rural homes and farms as is now being done by the Department of Agriculture of Ontario. This statement coming from the writer may look like patting one's self and his employers on the back, but as both are servants of the people, and both have the health and welfare of the people at heart, such a statement must not be so taken, but rather taken in the sense that it is made as a result of the interest shown by those who attend the lectures and take in the demonstrations. Up to the time of writing, over thirty towns and villages have been visited, and as high as 200 people at a place have called and spent sometimes several hours at the truck. In Hamilton the truck was located on the market and big crowds visited it—far more than the above named figure.

Special Lecture to Students

In the town of Selkirk, the truck was visited by over 100 persons, and the principal of the High and Public school called on the writer and asked if a special 30 minute lecture could be given to the scholars. This was willingly granted, and the scholars all walked down from the school to the demonstration truck in file formation in charge of the principal and his staff. The scholars numbered 120 and after the lecture, those who wished to ask questions were called upon to do so. The time taken up, every minute of which was made good use of, was about one hour, and the principal and staff stated that everyone in attendance received much valuable information.

Owing to the distance the truck had to travel, it was late in reaching the towns on time at which demonstrations had to be given. To find that many people had driven miles to see the demonstration truck and receive information, proved without doubt that the work being carried on is being appreciated. At the little village of Tyrrell over 50 people, men and women, attended; some had driven miles, and the teacher at the school gave the children 30 minutes time to receive a lecture on the subject of sanitation, water supply, etc., for the farm homes. Many of the children in Tyrrell and Selkirk had never seen a real shower fixture or even a cast iron enamelled plumbing fixture, and to note the interest taken by these little Canadians was an inspiration in itself. One little tot asked the teacher, "Say, please mister, how do you make that thing rain in one place," referring of course,

to the shower in operation. The little folk were simply filled with wonderment.

How the Work is Carried On

To give the readers an idea as to how the work is being carried on should be of value to them.

In the first place a list of places are chosen, that can be called at where such equipment is most needed and where the Women's Institute have in many cases asked that the truck be sent. The local papers carry a fair sized advertisement, announcing that on such and such a day the demonstration truck will be on view with two men in attendance. The same papers very often contain a reading notice as well in the editorial columns, and after the truck has been there still further comments are made.

The agricultural department also send out posters and billheads to the officers and members of the Women's Institute and give instructions that posters are to be distributed to stores and offices, etc., so as to be easily seen by the people of the various towns. Thus the interest is aroused in advance of the truck arriving.

When the demonstration truck reaches a town or village, it is placed on as public a site as possible, very often right on the street, but always where there is a good supply of water available, either a well or a good cistern.

If there is electric current available, the pneumatic water system is put in operation and is kept working until it stops automatically. If there is no electric current, a hand system is used, and all the plumbing fixtures are placed under pressure. This of course soon draws a big crowd and questions pour in thick and fast.

Explain the System

As soon as a suitably large audience is on the ground, the writer begins and gives an address, after which he and his attendant, who is a graduate of the Ontario Agricultural College, gets in among the crowd and explains many points in connection with the whole demonstration.

The construction of valves, bibbs, frost cocks, etc., is explained; how and why pumps are made the way they are; conditions where it is advisable to use and where not to use a shallow well pump; where large tanks for water supply systems are advisable and where smaller sized tanks can be used to advantage; the trade names of goods, for example the value; the cleanliness, say, of post-hinge closet seat is

shown; how a system is used, installed and put into operation; why it is advisable under all conditions to dispose of sewage by using a septic tank instead of a cesspool, and how a system operates, showing conclusively that it is preferable to any other type of flushing device in a septic tank.

Specific Advice

The writer is often asked to call at places where specific advice is needed and many times such a request has been granted. Three cases in particular will here be given:

At one farm a house has been fitted up with a complete bathroom outfit; the pump is one that could be operated by hand or power. Owing to bad crops, illness in the family, and the fact that the pump is altogether too hard to operate by hand, because it is too big, the whole plumbing outfit has never been used.

The farmer feels that he was given somewhat of a raw deal, and he was to a certain extent. But after a little explanation a smaller hand pump is shown to be needed for the present and by now the system is very likely in use.

Another instance was where the lady of the house saw the truck and the outfit, but wanted to know how and where such a complete equipment could be placed in her home. The whole thing was laid out and prices are being called for now. Still another case. One plumber several years ago had declared that a deep well pumping system would be absolutely necessary. Such, the writer found is not the case, and while this same man also said that it would require at least a two horse power gasoline engine and pump to furnish water, it was found that a one-half horse power plant will do the work, and not even a deep well is necessary.

Calls on Local Plumbers Where Possible

The most important question put to the writer was, "What will all this complete outfit cost installed and ready to turn on the taps? The writer calls where possible and procures a price on the outfit, including septic tank and sewage disposal bed complete and it might well be stated that prices ranging from \$500 to \$650 have been quoted. In several towns the local plumber has been on hand mixing in with the crowd and taking actual orders. But, in many cases, the plumber, sad to say, has kept in the background and when asked why such an indifferent attitude is shown has replied, "I don't have to go after business, if they want me they know where to get me."

As a matter of fact the writer has been told many times that it is a hard job to get a plumber to do a job. This is an awful indictment, but can be proved to be true in some cases, and also goes to show that there is big business to be procured from the farmer and rural resident, particularly in those districts where the government demonstration truck has been.

To the man who is slaving his life away in a city, tendering against low prices, cut price jobs, etc., this plan of education should and would be a boon

if he would move out into the country and work for the people who are willing to pay the price where value can be shown.

Quit Carrying Water

For the purpose of demonstrating practical and economical methods of providing

Running Water and Installing Modern Conveniences for Farm Home

The Provincial Department of Agriculture has fitted up a truck with **Air Pressure Water System, Hot Water Boiler, Sink, Pumps, Bathroom Equipment**

Demonstrations as to the methods of installing water systems under varying conditions and the utilization of running water to the best advantage in the home will be given by a practical plumber who has had a wide experience in connection with this line of work.

Demonstrations will be given in HALDIMAND and NORFOLK as follows:

Canboro	- (Township Hall)	-	June 5	-	10 a.m.—3 p.m.
Cayuga	- (Town Hall)	-	" 5	-	4.30 p.m.—9 p.m.
Selkirk	- (Community Hall)	-	" 6	-	10 a.m.—3 p.m.
Jarvis	- (Arena)	-	" 6	-	4.30 p.m.—9 p.m.
Tyrrell	- (Community Hall)	-	" 7	-	10 a.m.—3 p.m.
Marburg	- (Community Hall)	-	" 7	-	4.30 p.m.—9 p.m.
Delhi	- (Park)	-	" 8	-	10 a.m.—3 p.m.
Courtland	- (Memorial Hall)	-	" 8	-	4.30 p.m.—9 p.m.

The public, both men and women, are invited to visit the truck at their convenience, any time between the hours named.

The Demonstrators will be ready to answer questions regarding any feature of plumbing, installation of pumps, location of tanks, protection of wells, how the farmer can do most of his own plumbing, costs, etc. One of the Demonstrators will be in attendance at the truck continuously between the hours named, ready to demonstrate and answer questions. Where convenient one of the Demonstrators will visit the homes where installation of water system is being considered, for the purpose of giving specific advice.

Invite your friends to come with you and witness the practical demonstration of a water system practical for the rural home.

GEO. A. PUTNAM, Supt. of
Institutes, Toronto.

C. FREY, Agricultural
Representative, Cayuga.

HON. MANNING W. DOHERTY,
Minister of Agriculture,
Toronto.

G. G. BRAMHILL, Agricultural
Representative, Simcoe.

The above bill in large size is used as an advance notice in connection with the lectures of the Ontario Government dealing with rural sanitation. This bill, with names of places changed, is mailed out and posted up in every store in the district where the truck calls.

Started Fourteen Years Ago Plumber Now Does \$100,000 Turnover

Employing Fifteen Journeymen in Rush Seasons, Goodram Bros., Plumbing and Heating Firm of Hamilton, Tell How Business Can be Stimulated in Usual "Off Seasons"—Five Heating Systems Renewed in Short Time—Running a Branch Shop

THE stimulation of business in plumbing, heating and ventilating equipment during the present "off seasons" in the industry, in order to even up the amount of work being done throughout all seasons of the year, is one of the most important considerations facing the industry to-day, according to W. E. Goodram, of Goodram Bros., a thriving plumbing and heating concern of Hamilton, Ont., which has built up a substantial business by the employment of some very valuable and interesting sales and administrative policies. With the general interests of his fellow craftsmen at heart, Mr. Goodram discussed at length with Sanitary Engineer, some of the problems facing the trade and outlined fully the means taken by his firm to overcome them. Some splendid pointers were given which contain some helpful ideas for others in the trade.

Going further into the question of necessity of taking steps to even up business throughout the year, Mr. Goodram pointed out that the public had to pay for the present condition of affairs by which an employing plumber was forced to employ twice as many men at one time of year than another. It was shown that the best class of workmen do not care to work on this basis, and that while only five men might be employed where in rush seasons there were ten employed journeymen, that the stock and equipment for the whole ten had to be carried along as an overhead expense during the whole period by the employer. Furthermore, considerable stock had to be carried over slack seasons with resultant charging of excessive interest charges to overhead expense. Mr. Goodram pointed out that \$1,000 invested in stock which does not move for a year represents \$60 loss in interest to the plumber apart from other charges, and forcing competent journeymen to walk the streets for four or five months in the year. The solution for this difficulty lay, he thought, largely with the men employed in the industry. He thought some concerted action might well be taken by all branches of the industry to overcome this situation, just like the paint people have largely succeeded in taking paint out of the Spring-season class and making it an all year round seller.

Big Turnover

This firm has been in business for fourteen years and now does a turnover

of between \$75,000 and \$100,000, employing fifteen men in busy seasons such as early spring and graduating down to ten as the lowest point, this being during the month of January. Jobbing work alone averages \$500 a month. A showroom, office and workshop are conducted at 248 King St. West, Hamilton, and a branch shop is conducted at Burlington, Ont.

The conduct of a shop at Burlington gives some indication of the wide field covered by this concern. Mr. Goodram pointed out that much profitable business was secured from Hamilton people who build summer homes in the country districts surrounding the city and much of this building is done in Burlington. A number of men work out from this shop throughout the season. Prospects of this kind are being watched for at all times, and the firm's efforts to induce such prospects to instal the most modern sanitary and heating equipment in summer homes has brought good results. In some cases such homes contain the most up to date heating equipment and a num-

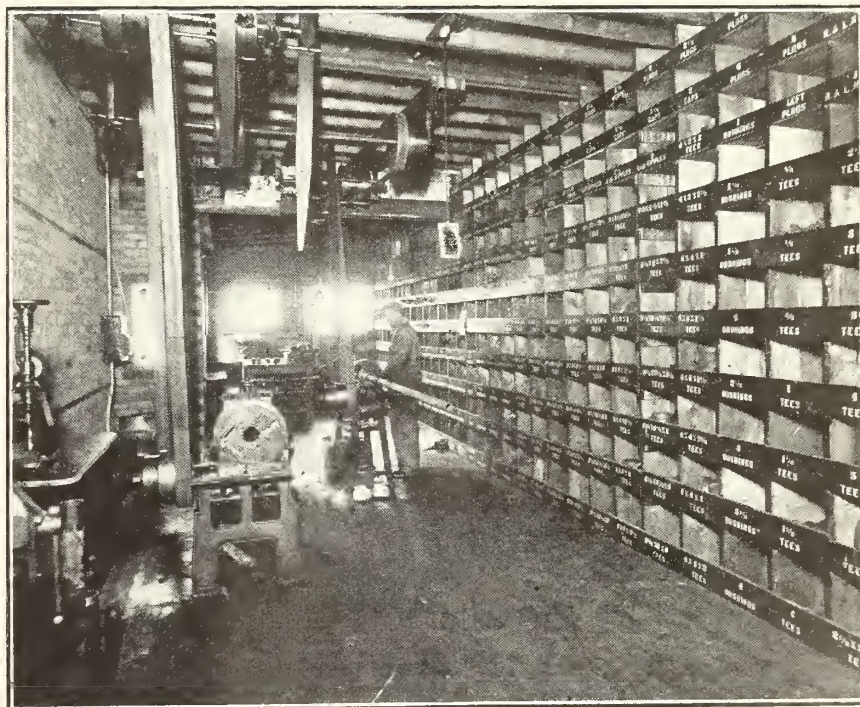
ber of bathrooms, in addition to complete laundry and kitchen outfits.

Renovating Work

Another way in which business can be stimulated in off seasons, despite any lack of new construction, is renovation work in existing buildings. Mr. Goodram stated that as result of some special work on various prospects, five warm air furnace installations which were not giving satisfaction due to the construction and size of certain houses were taken out and hot water systems installed within a period of a few weeks. Such business could, he thought, be considerably developed when other work was not offering.

"It is only by the employment of such methods that business enough can be secured to make unnecessary the laying off of 25% of the plumbing and heating journeymen during the months from January to March inclusive," said Mr. Goodram.

Best results along the lines of replacements were said to be made in the cities and larger towns. It has been the experi-



Interior view of workshop of Goodram Bros., Hamilton, Ont., showing pipe cutters and other machinery and the 135 bins which extend down the whole side of the shop with lines in each bin stencilled on the front board.

ence with farmers that if they were figuring on selling their property they would spend money to have it fixed up, but if not it was difficult to get them to move in view of the low prices secured for their crops. While a certain amount of such business could be secured, the expense was so great for thoroughly canvassing them, and results so meagre under present conditions, that little along this line was contemplated.

In concentrating effort on prospects for plumbing and heating equipment, Mr. Goodram points to similar work done in the vicinity. His firm has a number of prominent installations to its credit, both large and small, and it is found very effective to show an illustration of some such installation in the advertisement or other literature as an indication of the work done by the firm. Attention is also drawn to such installations verbally when occasion offers.

Premise report cards were formerly used by this firm to some extent, but it was found that unless the workmen were given commission on the additional work received through this medium, that they were very lax in putting it into effect. Mr. Goodram was of the opinion that much better results can be secured by having this report system carried on by the office help or special salesmen.

This firm use newspaper advertising space to reach the rural trade, and send special literature to prospects in the city, depending upon what work they are prospects for. Such effort is backed up with a showroom, which is not illustrated herewith because of the fact that it is to be altered.

In this showroom, an unique feature which has been found very valuable is to show in connection with each fixture what the cost is. A small holder is affixed to the wall above the wash basin, toilet, etc., and in this holder is a card on which is typewritten the various equipment involved with the price opposite each. A separate entry is made for instance for the sink, faucets, pipe fittings, etc., giving total for the complete job installed. Mr. Goodram pointed out that the underlying idea of this plan was to show customers that there was no secret about prices. It was his opinion that the public know too little about the plumbing industry and that is why they have been somewhat suspicious of it. Placing the "cards on the table" by showing a definite price to all who enter the showroom was one way in which this suspicion could be allayed.

The showroom faces on the front street, the office is in the centre of the building and the workshop is at the rear. As illustrated herewith the workshop is completely fitted to facilitate the location of pipe fittings, etc. Threading, pipe cutting and other machinery is available to assist the various branches of the work. In all there are 135 bins con-

Gentlemen:

As we are closing our fiscal year on the end of ——— and the auditor will have our books to balance at this date, therefore we are trying to facilitate his work by lessening our book assets and liabilities as much as possible.

If it is convenient for you to settle our account before this date we would appreciate same very much. If not, would you kindly sign the enclosed voucher and return to us before ———.

Thanking you for your patronage and past favors and assuring you our efforts will not relax in improving our service for the year 1923.

Yours very truly,

GOODRAM BROS.

Per W. E. Goodram

I hereby acknowledge the correctness of my account with GOODRAM BROS., at ———, 1923.

For

Please sign here

Above are shown the forms used by Goodram Bros. in connection with securing information re delinquent accounts. The top form is a letter sent, enclosed with which is the card bearing the wording shown in the lower form. The use of this plan either brings settlement or a satisfactory statement, in the great majority of cases.

taining elbows, tees, etc., specifications being stencilled under each bin. These fittings are arranged in such order of size that even a new man can readily put his hand on requirements with very little searching.

Mr. Goodram in discussing various business policies pointed to the advisability of getting invoices out quickly after the completion of the job. If a job is done to-day his office sends the bill to-morrow. While the customer is enthusiastic about the work is the time to make him pay, says Mr. Goodram, and he doesn't wait until the novelty dies off and the customer becomes lethargic about paying the bill.

The firm prides itself on the small proportion of accounts classed as bad debts. The largest account ever lost was one for \$51. As stated, an invoice is sent out immediately upon completion of the work. A statement follows at the end of the month. If at the end of the next month payment is not forthcoming a personal call is made by someone in the firm.

In connection with some overdue accounts which had not been paid despite the regular efforts, the firm used a letter to good advantage. This letter and card enclosed are shown elsewhere. This combination brought in considerable

money and where money was not sent a statement was made which gave the firm some idea of what they might expect.

"There would be a big shortage of mechanics in the plumbing and heating industry of this country should a big development come in this business," said Mr. Goodram to Sanitary Engineer in discussing the apprenticeship question. It was stated that the only mechanics now coming to Canada were from the Old Country, and that the supply of these was not sufficient to meet the requirements of a rush season here.

Mr. Goodram is of the opinion that some steps will have to be taken immediately to solve the apprenticeship problem in order to safeguard the future of the industry. As it is, there are so many other better paying positions open to young men, where clean clothes and an attractive appearance can be presented, that an apprenticeship in the plumbing industry is less attractive to the young men than formerly.

"If we paid \$20 a week to young men, such as is being paid in other lines," said Mr. Goodram, "we could not afford to keep him around the shop instructing him in such a way as we could afford to do were we only paying him \$7 a week. He would have to get out and hustle and earn the increased money."

"Showroom More Economical Than Operating Business From Private Premises"

Latter Type of Plumber Escapes Only the Smallest Items of the Overhead Expense and Sacrifices the Advantage of Maintaining Direct Contact With the Public, Says Mr. Goodram

DISCUSSING the question of relative costs of operating a plumbing and heating business from a central showroom and office as compared with operating from a house, Mr. Goodram expressed some interesting views.

It is his opinion that the shop is more economical from several standpoints than is the conduct of business from a house, in addition to which there are the advantages of having a showroom to show various fixtures as they appear installed and to help the plumber conduct business on a merchandising basis. Mr. Goodram expressed the opinion that the plumber does better when he identifies himself as a business man of some standing in the community, anxious to do business on the same basis as other merchants, and that he cannot do so unless he has some central place of business with some distinguishing features such as a showroom.

As a general rule the plumber working from a house carries little or no

stock. It is necessary for him to depend to a much greater extent on the wholesalers' stocks than with the plumber conducting a showroom and shop. Here is a waste of time and additional expense in transporting equipment.

"The man operating from a house may save on such overhead items as 'light, heat, donations, advertising, real estate repairs, rent, etc., but these are among small items in relation to other overhead costs," said Mr. Goodram. "Buying in larger quantities enables the plumber with shop facilities to buy to better advantage, saves time, and there is naturally a limit to what any operator can do when working out from a house. An attractive place of business is needed to influence the public, and while some plumbers do a comparatively big business from houses, I don't think it helps put the industry on the desired plane to conduct business in that manner, and it is just possible that they could do an

even larger business were they to conduct a central showroom and shop.

"There is no argument against the showroom," concluded Mr. Goodram, "but judgment must be used and the expense kept within range of the business done. It doesn't pay to run the overhead expense up too high by the showroom. In our own case our showroom is looked for by the people of the community, it is our outward appearance to the public, always on view, and it retains our connection very definitely. It is our intention shortly to reconstruct our showroom so that it will not take up so much room. We will put in a model bathroom which can readily be changed to a model kitchen or laundry and let that be sufficient in the way of display. We will then extend our office to take care of the bigger business we are working up."

Mr. Goodram is of the opinion that the indenture system is the only plan on which to develop apprentices, pointing out that under the present plan after serving two or three years, an apprentice will go away and become independent of the master plumber who has been teaching him at his own expense. This is obviously unfair to the employing plumber.



Part of the busy staff of fifteen or sixteen journeymen employed by Goodram Bros., Hamilton, Ont., photographed by Sanitary Engineer just outside of the firm's shop. Some of the ways in which the firm, with the help of these men, develop business, are to be found in the articles in this issue.

Divides Overhead Into Productive and Non-Productive Divisions

Anything Not a Direct Charge is Non-Productive,
Says Mr. Goodram, in Describing Unique System
of Accounting

COSTS are a very big item in plumbing and heating business, they are more involved in this than in many businesses and unfortunately there are probably fewer people in this industry who know what costs are than in most other lines," said Mr. W. E. Goodram to Sanitary Engineer. "Much of the cut price competition which has to be faced in this industry comes from operators whose knowledge of costs is so meager that they do not know that they are really doing business at a loss in many cases. In such instances the people for whom work is being done are not paying what they should, work is denied the established operators and being done by those who by the manner of their work alone must of necessity be of the fly-by-night variety, and the whole industry is damaged."

Going into details of the accounting methods employed in his business, Mr. Goodram outlined the items involved in overhead expense figured on the basis of productive or unproductive labor. These items included:—gasoline, motor oils and grease; car repairs; repairs to tools and equipment; light, heat, gas

and fuel; donations to charity; advertising; travelling expenses; postage and telephone; audit and legal; association dues; stationery; real estate and repairs; rent cost; bonuses paid; incidental; wages, (non-productive); depreciation; bad debts; interest; insurance and taxes; workmen's compensation; proprietor's drawing account.

"Anything which is not a direct charge is non-productive," said Mr. Goodram pointing out that a shop man might have certain hours of productive labor and unproductive labor during a day accordingly as it could be charged against some particular job. Time spent in delivering goods to a job is classed, for instance, as non-productive labor.

In connection with office direction, it has been found advisable to close the year at the end of March. This was decided upon because of the fact that there is less left over work and less material scattered around on various jobs at that time than at any other time of year, and as a result the inventory job is minimized and stock-taking can be done much more accurately.

Committee on Plumbers' Brass Goods Makes Interesting Recommendations

Obsolete Types to be Eliminated—All Brass Fixtures Must Withstand Test of 100 lb. Pressure

SOME months ago the National Association of Brass Manufacturers was requested by the United States Government to revise specifications for plumbers' brass goods for the treasury, war and navy departments. Accordingly, the president of the association appointed a committee on traps, drain fixtures, flushing devices, etc.; another on showers, bath and other combination faucets; and a third on single faucets, valves and miscellaneous items. These committees, in collaboration with men from other manufacturing firms not members of the N. A. B. M., have drawn up tentative recommendations.

The fundamental principles of procedure approved by the committee were:

Obsolete types to be eliminated.

Detail measurements to have liberal tolerance.

Manufacturing process not to be specified.

Minimum weights of brass goods to be specified.

As few metal mixtures as possible to be specified.

Brass manufacturers' standards to be accepted as far as possible.

The guiding thought of the committee has been to aid in planning a set of specifications for plumbing the government buildings which will secure brass goods that are serviceable, modern, and regularly produced by reputable manufacturers as stock material.

The manufacturer's mark should be stamped or cast on every fixture, and on every part that is not a complete unit.

All brass fixtures, such as faucets, valves, supply pipes, etc., before offered for sale must withstand a test of not less than 100 lb. of constant water pressure to the square inch; ground cocks to withstand such a test of not less than 200 lb.

No red or white lead or other harmful compounds to be applied to female threads of joints in pipe fittings. This will avoid a large amount of residue lead and other poisonous ingredients which contaminate the water for a period after installation.

The word "compression" in connection with faucets, stops, and the like, covers those types whose stem has a thread of not more than 1/6 inch per revolution. Those travelling more than 1/6 inch per revolution are designated as "quick compression." All Fuller faucets should be eliminated for compression or quick compression faucets. The delivery capacity required of quick compression faucets, stops, etc., and self-closing faucets should be less than the delivery capacity required of compression faucets.

All faucets and stops should be constructed so as to be safe against self-opening at a constant water pressure of not less than 80 lb.

Specifications should permit the entire designations on handles of faucets. That is to say, the words Hot, Cold, Ice Water, should be spelled out instead of the initial letters used, such as H, C, I.

Specifications should not be limited to gate type valves. The type of valve to use depends on the nature of the fixture, pressure, and other factors. In many instances, globe valves, angle valves, or compression stops are better suited to the purpose than gate valves, and less costly.

It should be noted that the term Non-Scalding Regulating Valve is often used loosely in advertising literature. It should be applied only to valves that are thermostatically controlled. If it is desired, we suggest the installation of an automatic temperature control valve near the source of the hot water supply at a point where it is desired to control the temperature of the hot water.

The 3 1/2-inch size of hand spray is considered "special," the 2 1/4-inch is in general use and should be specified.

Faucets for hose connection should not be shown as having a shoulder immediately above the hose thread.

Flushometers have not been standardized, but are mostly patented articles, and each manufacturer has a specific and distinct construction. Under the circumstances the committee is not warranted in making any recommendations.

When lavatory and sink traps are made with two union connections that permit the removal of the return bend in the dip for the purpose of cleansing they shall not be supplied with a trap screw or clean-out plug.

When a return bend is cast integral with the outlet of lavatory and sink traps, they shall be provided with a clean-out screw or plug. Such a screw or plug shall be located not less than 1 1/2 inches below the normal seal surface or else at the house side of the seal.

The free opening for clean-out screw or plug in cast sink and lavatory traps must not be less than 7/8 of an inch in diameter.

Traps must have full and perfect threads not finer than 14 to the inch.

The connected waste and overflow with stopper is the most sanitary installation for baths.

How Extra Business May be Secured

Give Him Fresh, Cool Water



A horse is at his best only when his drinking water is always fresh and cool.

Common sense and human kindness join in urging that kind of water supply for all live stock.

It can't be done with pumps and pails and stagnant troughs—except by extravagant waste of time and effort.

A Farm Water System supplies running water to every trough, every barn, every stall, and the water is cool and clean.

Running water on the farm is too valuable for any farmer to do without.

See a Farm Water System for deep or shallow wells; we'll sell on time-payment basis.

YOUR NAME HERE

Phone No. Address

How to Order Advertising Material

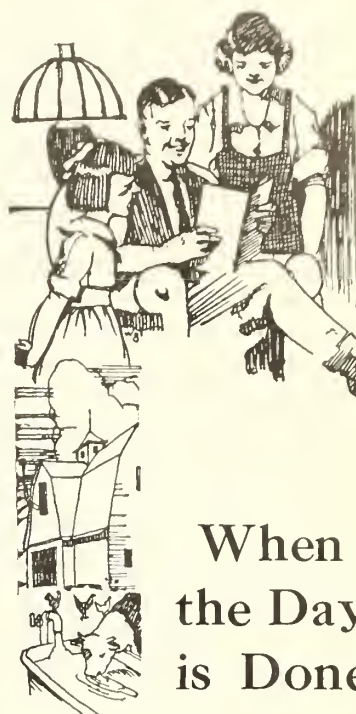
Advertisements in each issue will form a complete month to month advertising campaign for your use.

These are only a few of the electros available in this service. Complete catalog of all illustrations available to date will be mailed on request.

The catalog gives serial numbers on each illustration and the price is quoted. Prices range from 30 cents to \$1.00 for electros according to size.

In ordering from catalog write plainly the serial number of the illustration and send remittance to cover the order in order to save cost by avoiding book-keeping expense.

*By Courtesy, National Trade
Extension Bureau*



When the Day is Done

and the family gathers for the evening, it is easily seen whether or not there is running water on the farm.



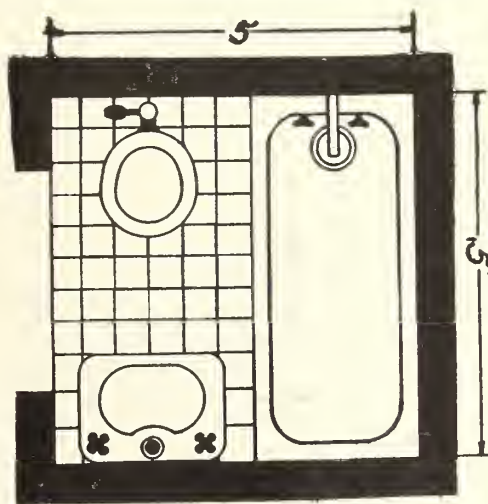
Where there is no running water, tired lines in the housewife's face and figure tell of exhausting labor, pumping and carrying heavy pails of water—besides the other housework.

The farm housewife is no criminal! Don't make her serve a life sentence at hard labor! A Farm Water System is inexpensive, reliable and a paying investment. Pumps for either deep or shallow wells.

YOUR NAME HERE

Phone No. Address

An Extra Bathroom for Large Families



In any dwelling which houses more than four persons, more than one bathroom is needed. Comfort and convenience demand the additional bathing and toilet facilities.

Too many property-owners think that an extra bathroom calls for costly remodeling. Our booklet, "Is Your Home Truly Modern?" will show you the wrongness of that idea. Ask for it to-day.

A large closet, an alcove or any unused space, five feet square, is large enough for a complete, modern bathroom! Particulars on request.

YOUR NAME HERE

Tinsmithing and Sheet Metal Work

Increasing the Volume and Profit Margin on Various Sheet Metal Work

Outgoing Dollar Based on Average Sheet Metal Job is Made Up of 37 Cents for Merchandise, 32 Cents for Labor and 31 Cents for Overhead—Furnace and Sheet Metal Work About Same—Ventilating and Special Sheet Metal Work Varies Somewhat

(Written by a sheet metal worker)
(Continued from last issue)

IN OUR issue of June 1 a sheet metal contractor explained what the cost of doing a sheet metal business is and the following article is a continuation:

But let's see,—take the six men and four helpers' payroll of \$1,512.00 per month; he would receive, according to the payroll of \$1,512.00 × "Officers' Salary" unit 0.082, equalling \$123.98.

But running a small business of this size, he would be drumming up all the business and is therefore entitled to the unit of "Salaries—Selling" which is 0.0799, on \$120.80.

And inasmuch as his foreman is productive he is also entitled to the indirect labor unit of 0.088 on \$1,322.05.

So we have:

Officers' salary	\$123.98
Salaries—selling	120.80
Indirect labor	132.05

Total\$376.83

The shipping expense will remain which amounts to \$186.12 of which \$70.92 may go to "Lost Time" and \$115.20 for a driver's salary.

Comparing this with the operator's salary of \$328.00 per month, based on a \$5,000 per month payroll, we find that the small operator draws \$52.78 more salary than the larger operator.

And supposing that both operators are getting their work on close competition, or practically without a profit, it is clearly seen that the small shop is the better proposition of the two.

The large operator must increase his salary with profit—but how can that be done when there is no profit to be had?

Now then, as to rents.

An operator with a \$6,000 payroll, according to the rent unit, will be paying \$6,000 × 0.0165, or \$369.00 rent per month.

An operator with only three men and two helpers, a payroll of \$756.00 per month, applying the rent unit, would be paying \$46.49.

It all looks simple, does it not?

And I believe that the figures are not far from being correct.

You can apply these figures in group units or all in one total unit of one dollar to your total expense budget based on your productive labor, to see if you are within keeping of your estimated expense in relation to your volume or running behind, or you can apply them in group units—anyway you see fit so long as you do it.

Big Volume Not Always Desirable

Here is another illustration to prove that volume is not what it is cracked up to be, also to show where volume is needed.

Let's take the one man and one helper payroll, a total of \$291.60 per month.

Applying the expense units, how much salary will the boss have in this case when he does all the selling, superintending and office work?

He does all the work called for under units of	
Officers' salaries	0.082
Office salaries	0.089
Salaries—elling	0.0799
Indirect labor	0.088

Total unit 0.3389

Applying this unit to his expense budget of \$291.60 we have \$105.55.

In most cases his entire time is productive along with his one man and helper, but we will base this example only on one-half of his time as productive, so we have 108 hours at \$1.00, \$108.00. Therefore, his salary per month is \$213.55.

You may say that this man should increase his volume, or better, work for someone else.

But supposing this man gets a profit on his work, say at least 10 per cent. on top of his merchandise, labor and expense, and basing his merchandise on the average at the same amount as his productive labor and taking into consideration that the larger operator is after the volume and in most cases without a profit, we set down this example.

Hired payroll	\$ 291.60
Owners, productive	108.00

Total labor \$ 399.60

Merchandise	399.60
100 per cent. overhead	399.60

Total cost	\$1,198.80
10 per cent. profit	119.88

Monthly sales \$1,318.68

Now to compare his salary with the larger operator's salary of \$328.00 per month, we have:

Administration salary	\$105.55
His productive earnings	108.00
Earned profit	119.88

Total monthly net earnings .. \$333.43

Now, inasmuch as the larger operator is not getting a return on his investment, we can't insist that the small operator should.

They are both getting practically the same salary, the only difference is:

Big Business, Big Worry.

Little Business, Little Worry.

Capital Units Number 1.

Bank balance	0.02½
Accounts receivable .....	.31¼
Work in progress .....	.18¾
Stock of merchandise .....	.25
Equipment .....	.10
Autos and trucks .....	.08¾
Furniture fixtures .....	.03¾
	\$1.00

Capital Units Number 2

Bank balance	0.04
Accounts receivable .....	.20
Work in progress .....	.30
Stock of merchandise .....	.12
Equipment .....	.16
Autos and truck .....	.14
Furniture fixtures .....	.04
	\$1.00

How to Apply the "Capital Units"

That is to determine the amount of business a given amount of capital can handle.

The difference in figures between number 1 and number 2 is the difference in the size of the business and the difference in management.

Some will require a certain amount of capital to conduct the business on a sound basis.

Others conduct their business on their nerve and someone else's money.

To explain the application of these units to a given capital, including borrowed money, we will take the figures as shown in number 2.

And in order to keep within the limit of these figures, you will have to be a good manager, a good buyer and a good collector.

Supposing you were going to start in business with a \$5,000.00 cash cap-

(Continued on page 23)

Patterns for a Conical Scoop

Written for Sanitary Engineer by O. W. Kothe, Principal,
St. Louis Technical Institute

THIS scoop is also more of a problem of value in the cutting of miters on conical figures than for its necessity of making as most of these scoops are factory made. The miter development is interesting as it helps to understand other work and so it is not a waste of time in laying out.

From the elevation we see we have two cones as A-C-B-A and A-B-D-A. The axis line in the length is C-D and the short line A-B. These lines of measurements can be made anything to suit conditions. Then the miter line is traced through at pleasure. This shows that it does not matter in what way or in what position you cut a conical fitting. The treatment would be followed this way, since our cut in this case is irregular. Describe the half section which shows that the shape through A-B is cylindrical. Divide this half section into any number of equal spaces as 1-2-3-4-5, etc., and project lines to the base of cone A-B. From these points radiate lines to the apexes C and D as shown. Now where these radial lines cross the curved

miter line drop lines to the slant line as B-D and D-C.

Observe this places all the fore-shortened radial lines in a true position on a true slant line and enables us to get true lines for the pattern. To set out the pattern for the back part, set dividers to D as center and D-B as radius, strike an arc indefinitely. From the half section pick the girth spaces and set off twice

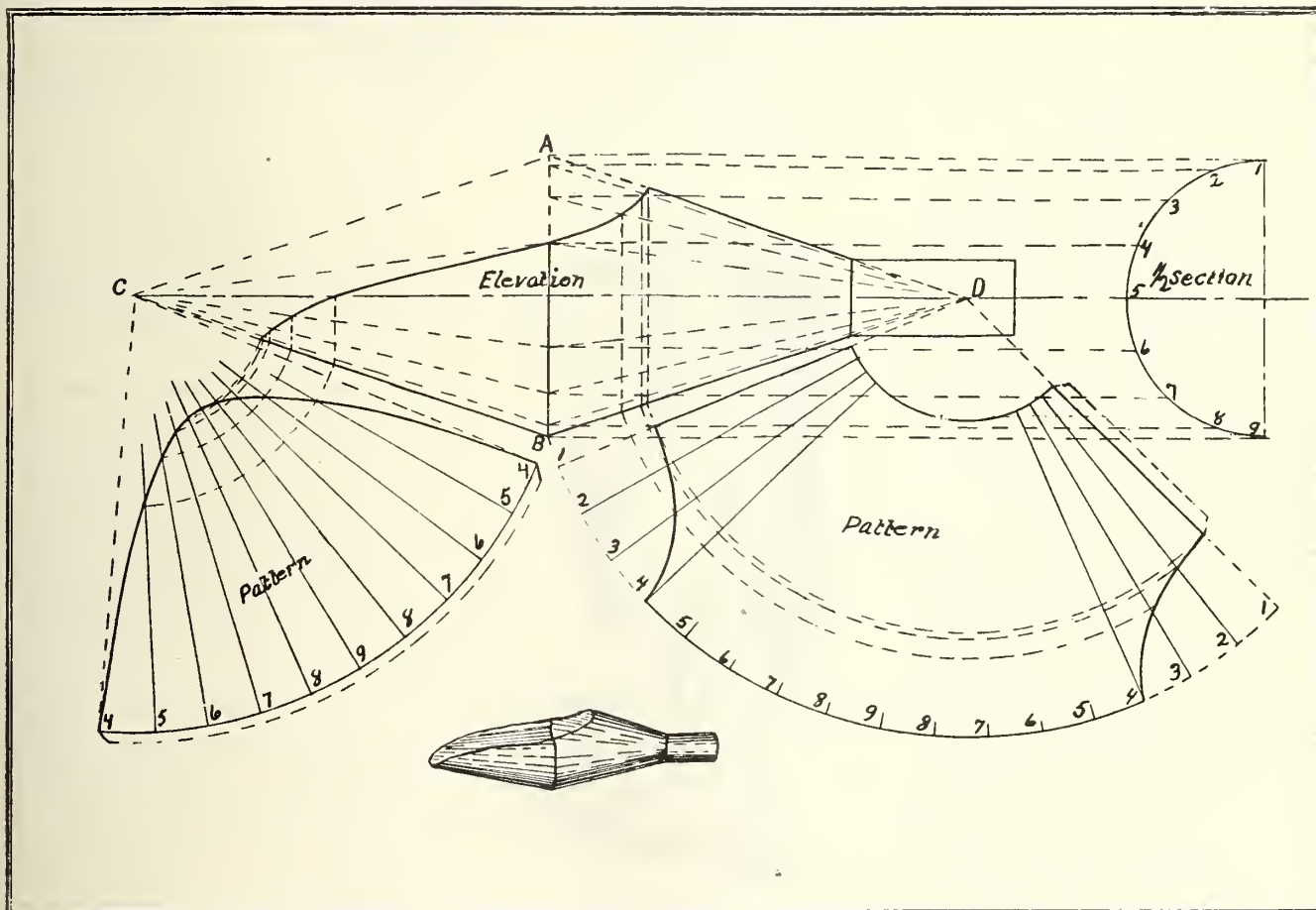
as many, establishing the points 1-1 as shown. Draw radial lines to D and then from each point in the slant line D-B, sweep arcs into stretchout, thereby cutting radial lines of similar number. Through these new intersections, sketch the curves and you have the pattern for the back part of scoop.

For the fore part of scoop use C as center and C-B as radius, describe an arc indefinitely. Then set off the girth required to make this lip as we see the intersection of this cone merges with the base A-B in point 4 of half section. So we set off twice the spaces from 4 to 9 and 9 to 4. Draw radial lines to C and then from each point in lines C-B sweep arcs into stretchout, thus cutting lines of similar number. Through these new intersections trace a curved line making it uniform so no hills or hollows appear and you have the pattern for the lip of scoop. A small edge must be allowed for seaming and if a wire is to be enclosed along the edge an allowance equal to $2\frac{1}{2}$ times the diameter of the wire must be made for this also.

APPRECIATES "SANITARY ENGINEER."

"We appreciate Sanitary Engineer very much and find it helpful both for current prices and articles on sewage disposal."

Brooks Plumbing Works, Moncton,
New Brunswick.



Designs for a Conical Scoop.

"They Think Muney Groze on Berry Bushes and Ther Developin' Into Berry Pickers"

So Jerry Describes the Trouble With the World To-day—Jerry Visits the Ontario Society Convention and Tells of What He Learned in Toronto—"The 'Prentice Question is Sure an Agger-
avatin Won"

Written for Sanitary Engineer by MAJOR L. L. ANTHERS, Managing Director
Anthes Foundry Co., Ltd., Toronto

Dear Friend Al.—

You musta thot I've been hibernitating with the bares etc. oweing my silents for the passed month but weave bean bizzy with a Capitol Bever since the fine wether begin 2 come. But the wether hass-ent bean all fine considering the rain witch has bean a regler caller for the last weak. Bizness got off 2 a good start at last & weer lumpin from daylight saveing 2 dawn.

However I did get a chanct 2 attend the big conventn. at Tronto in May and a good time was had by all. We had a big luncheon at the K. George the 1st day & ended up with a banket at Brig-hams the last day. The pieces de resistance at the banket were severial in number.

George Baker told us all abt. "Wot the 'ell Bill," and George sure can do wot the 'ell. Ide justa soon lissen in on George Baker any day as Harry Larder.

Then Persey Mansale and Garry Franklun did Mr. Galliger & Mr. Sheen & they sure did them Brown. Peeples is in jale fer less. A feller wat has "door-able as the piryimids" fer a mother says the plumber make a mistake wen he misleads the publick to bleeve that a plumbing job shld last a life time. Reny-vation he sez is the life of trade. I guess its time to give the perymids & the spinx a change of hart.

A big feller from Deetroit what runs the stait of Mishigan in plumbing matters give a grand spiel. His name is Kennedy. He hailes from Tronto & sez he lernt his traide with old Kenny Alliston & unernt it with the 2nd jennyration by witch he ment Kenny Jr. But all joakin on the side he ripped things close and handed out a lotta powrful doap. He sez that if a plumber goze arnd. lookin like a bum the genl. publik is likely to mistook him fer a bum. A good plumber he infurred shld. be knowne by his laundry bill. He was a purty smart-lookin cuss hisself & judgin by his success he musta had the rite slant. But bleeve you me Al its hard on yr. neck to rassel with a seller drain with a white stiff stand-up coller on. I bet-

cha if he looked back fur enuff he had a purty dirty neck hisself sometimes. It aint the nature of the plumber to git dirty & all mussed up but it sure is the nature of the bizness. Of coarse if you gotta offis job & aint got nothin to but ride round in a Packer inspectin jobs & given someone ell onct in a wile its all rite & you kin keep yr. coller cleen. But there aint the saim no. of yung men comin inter the bizness nowadays & mennys the time a boss finds hisself short-handed & has to dig in hisself. This prentice questn. sure is a aggeravatin won & keeps the boss guessin wear the traide is goin 2 drift 2.

Wile ime bugs on eddication miself seein as I never had mutch I bleeve in givin a yung feller a chanct but theirs a lotta yung fellers wot is tired of skool by the time theys 12 but the law sez as how they must continyer untill theys 16. Wats the ressalt? They lofe at skool fer abt. 4 yrs. lerns 2 smook cigerets & shute



Jerry on his return from the Ontario Convention tells about George Baker's, "Wot the 'ell" and other developments.

the boans & by the time theys ternd lose theyve lost respect fer onnest werk & begins to look fer a white coller job witch they aint noways fitted fur ennyways. Men is like differnt kinds of hoarses some of witch is fer hard plowin & etc. & others fer racin as some on us nose 2 our cost. You cant maik a race hoarse outta plow-hoarse nor can you maik a plow-hoarse outta a race hoarse thow judgin by the weigh some of them run they shld bee pullin a plow. If all the hoarses is race-hoarses hoo the 'ell is goin 2 do the plowin as Geo. Baker wld. say? The hole trubble with the world is weer groan 2 fussy. A lotta yung fellers thinks at monney groze on berry bushes & there developin into berry pickers. But you know Al them kinda berrys doant grow on bushes & theirs a lotta good manhood goin 2 waist waiten fer them to grow. Wen they gets tirde waitin they begins 2 talk abt. somethin bean rong with the kapilistik class & blaimes everybody but theirselves. Wimmen gets the same weigh & mennys the fine woman wat hez bean spiled by fine cloze. They doant want 2 werk fer feer of spilen there cloze but if you dont werk how yer goin 2 buy the cloze, tell me that.

I onct new a feller wat was trubble with insommnier & cldnt. sleep nohows thow heed lay in until 10 clock in the a.m. He went 2 all sortz of Drs. & they give him all sortz of doap but he grew worser insted of better. The feller worked fer the saim boss as I did & the boss begin 2 git tirde of him comin in lait lookin like the raggen end of a brewers picknick. Then the boss took him in hand.

"Get up a 5 o'clock in the a.m. & taik a long fast walk then hev brekfast. Then start 2 werk & werk like ell. The yung feller didnt like the medycine but the boss maid him taik it. Fer a cuppla days the yung feller begins 2 look like he was goin 2 die on hour hands but befoar the weak was out heed fall asleep rite after supper & wld. snoar the roof off untill the alarm went off at 5 a.m.



The young ones "loaf, lern 2 smook cigerets & shute the boans."

the next a.m. After all common scents is the best Dr. their is.

I will now say ad infinitum witch is good-bye till we meat agen in Latin.

Yours, Jerry.

INCREASING THE VOLUME AND PROFIT

(Continued from page 20)

ital, and knowing that you can borrow \$5,000.00, this will give you \$10,000.00.

Now the question is, how will it be divided according to the capital units?

The application is the same as the Expense Units to the Expense.

Bank balance, $0.04 \times \$10,000 = \400.00 at all times.

Accounts receivable, $0.02 \times \$10,000 = \$2,000.00$ at all times.

Work in process, $0.30 \times \$10,000 = \$3,000.00$ at all times.

Stock merchandise, $0.12 \times \$10,000 = \$1,200.00$ at all times.

Equipment, $0.16 \times \$10,000 = \$1,600.00$ at all times.

Autos and trucks, $0.14 \times \$10,000 = \$1,400.00$ at all times.

Furniture and fixtures, $0.04 \times \$10,000 = \400.00 at all times.

Total capital, \$10,000.00.

12 months

Monthly outlay, including expense \$ 3,000.00

Cost of sales per year 36 000.00

10 per cent. profit 3 600.00

LOOKS FOR THE PRICES

Editor, Sanitary Engineer.

"We look forward to each issue of Sanitary Engineer and read the price articles first. We also take great pleasure in reading about the different septic tank systems which are a great help to us especially in the small towns. We also make good use of pipe patterns in our line. Problems in Hydro Water pumps, etc., make good reading. We wish Sanitary Engineer the very best of success.

"Big R Sheet Metal Co.,
"Biggar, Sask."

Yearly gross sales \$39,600.00

The return on your capital in this case is 36 per cent.

Now can you do it?

Ordinarily it is only 24 per cent.

In conclusion I want to ask you just one question:

If it is impossible for you to live up to the 10 commandments, as given here, will you at least remember them and try to live up to some of them for at least one year until the next convention?

Remember and Practise These 10

1—Love thy neighbor as thyself, also thy competitor, but not his wife.

2—Include in the selling price for items—Merchandise, Labor, Expense, Profit.

3—You must have a profit even if you have to speak to your competitor about it.

4—Thou shalt not steal thy competitor's through increased volume which does not pay a profit.

5—You must receive a return on your investment.

6—You must create "velvet" and distribute same, to the betterment of efficiency.

7—It is your duty to put your ideas to work for the benefit of the sheet metal industry, creating a new demand, to offset ever-growing competition.

8—You must consider your capacity, weigh your ability and not forget that there is a limit when considering additional volume.

9—Analyze your business and find out where the pennies in your dollars go.

10—You must get together; speed up sales; keep down expenses and stop the other fellow from using your money.

Still in Doubt

Tommy had been playing truant from school, and had spent a long, beautiful day fishing. On his way back he met one of his young cronies, who accosted him with the usual question, "Catch anything?"

Tommy, in all the consciousness of guilt, quickly responded:

"Ain't been home yet."

A Feline Bread Crumber

"Mamma! mamma!" cried a six-year-old, rushing into the parlor, where his mother was entertaining some friends. "There's a mouse jumped into your bread pan!"

The good woman was much disturbed and frantically asked: "Did you take him out?"

"No'm; I threw the cat in, an' she's diggin' after him to beat the band!"

Heating and Ventilating Department

New Rulings for Public School Ventilation

Main or Trunk Ducts to Admit 1,200 to 1,800 Ft. Per Minute—Toilet Rooms to be Ventilated Direct to Outer Air by Movable Window or Skylight

AN important revision in the rulings of the Director of School Buildings applying to the ventilation of public school buildings in that district is outlined herewith.

According to the rulings previously in effect the flues and air ducts as parts of ventilating systems, it was felt, were too large and did not accomplish the desired purpose of increasing the efficiency of such systems. Another ruling required that all air for the ventilation of toilet rooms should be taken from the main ventilation system and the re-circulation of air was prohibited.

After a conference with the Director of School Buildings an agreement was reached, as a result of which the committee drew up its recommendations in the form of a letter. The announcement was made that the suggestions as offered had been found satisfactory with possibly slight modifications and would be accepted. The committee's suggestions are presented herewith:

Air Velocities

a. Vertical Supply Flues. We recommend 500 to 750 feet per minute with a flue depth of not less than 16 in.

b. Horizontal Supply Ducts. Individual ducts 800 to 1200 feet per minute. Main or trunk ducts 1200 to 1800 feet per minute.

c. Inlet Openings in Rooms. Velocity over free area of opening 300 to 400 feet per minute.

d. Vent Flues. Vent opening and flue room to be same size as supply flue and opening.

Where a so-called Unit system is employed for supplying air to room an individual vent flue should be provided with area of opening and flue the same size as mentioned above.

Every toilet room or every water closet or urinal compartment shall be ventilated directly to the outer air by a movable window or by skylight with

fixed or pivoted louvers. Every such room or compartment shall have a window or glass skylight not less than 6 sq. ft. in area, and for each additional fixture the area of window or skylight shall be increased at least 1 sq. ft.

Positive ventilation in addition to the above requirements shall be provided in pupil toilet rooms. This system shall consist of metal or smooth masonry

WELL PLEASED WITH SANITARY ENGINEER

Editor, Sanitary Engineer,

"I am well pleased with Sanitary Engineer. It keeps me posted on the prices of stock. I also like the new items and the articles on septic tanks and sewage disposal.

"R. F. Morrison,
"Morrison & McDonald,
"Summerside, P.E.I."

ducts from the individual toilet rooms or compartments direct to outdoors, and the air movement shall be induced by means of an exhaust fan or by aspiration. The air volume exhausted shall not be less than 35 cu. ft. of air per minute for each water closet or urinal. If the air is exhausted from within 2 ft. of each fixture, the air volume may be reduced to 25 cu. ft. of air per minute per fixture. No fresh air shall be supplied to toilet rooms by mechanical means.

Partial Re-circulation of Air

In order to reduce the cost of installing and operating mechanical systems of ventilation, re-circulation of air should be permitted provided the returned air be purified by an effective chemical or electrical process. Under no circum-

stances, however, should more than 75% of the total air supply be re-circulated and 25% of the total air supply should at all times be taken from out of doors.

Temperature and Humidity Control

With reference to the temperature and humidity of the air and its control we would suggest the following:

The temperature of the air in the various rooms and spaces within the building shall be maintained at all times during occupancy within the ranges given in the following schedule, except when the outside temperature renders artificial heating unnecessary. Deg. F.

Class, study, lecture and recitation rooms	64-68
Auditoriums and assembly rooms	64-68
General laboratories, domestic science rooms and manual training rooms	64-68
Gymnasiums	55-68
Offices, reception rooms, teachers' rooms, retiring rooms, libraries and lunch rooms	64-68
Corridors	58-65
Playrooms, locker rooms, wash rooms, dressing rooms and coat rooms	60-66
Toilet rooms	60-66

Control of temperature in rooms shall wherever practical be maintained by automatic means in such manner that its operation does not decrease the air volume required for ventilation.

The relative humidity of the air in the various rooms used for study purposes, shall, wherever practical, be maintained reasonably constant by automatic means, and while the school is in sessions the relative humidity of the air in these rooms must not be less than 40% nor more than 60% except when the outside weather condition renders the latter impractical.

Air Velocities in Gravity Systems

Regarding velocities in ducts and flues for gravity systems of heating and ventilating we suggest that the velocities in both the supply and vent systems be limited to not more than 300 ft. per minute with a flue depth of not less than 16 in. and an area of not less than 600 sq. in., and each vent flue should be provided with an aspirating coil, or stack stove.

**"Sanitary Engineer," the Paper That Publishes
All the News While it is News**

Steam, Vapor and Hot Water Heating

Simple Examples and Experiments—Methods of Making Connections—Why One Inch Pipe is Basis of All Heating Calculations in Arriving at Amount of Radiation Required

Written for Sanitary Engineer by EDWIN NEWSOME, Consulting Engineer
(Article No. 4 of Series—Continued from last issue)

AND now a word about the heat unit. What is meant by a heat unit and its value?

A British Thermal Unit, (B. T. U.) is the amount of heat required to raise the temperature of one pound of water at 32 degrees F. up to 33 degrees F. For instance even though a pound of water has 60 degrees and for some reason or other it was necessary to raise the pressure to 61 degrees, to do so would mean that one B. T. U. had been added.

The question as to the temperature of water in an open expansion tank, gravity job, or of steam under pressure or under a vacuum is very often put up to the heating engineer to answer. Now, water boils at sea level when it reaches a temperature of 212 degrees. If pressure is added the boiling point will of course be raised, and of course if pressure is added to a hot water system it must be done in one of two ways. First, by placing some absolute resistance on the expansion line by the use of valves or "generators," "boosters," heat intensifiers and the like, or by connecting a heating system direct on to a city water supply. A

TABLE I
Table of Pressures and Temperatures

Pressure per Square inch	Temperature of Steam or Water
0 pounds	212 Degrees
½ "	214.5 "
1 "	216.3 "
1½ "	218 "
2 "	219.6 "
2½ "	221.2 "
3 "	222.7 "
3½ "	224.2 "
4 "	225.6 "
4½ "	227.1 "
5 "	228.5 "
7½ "	235.1 "
10 "	241 "
15 "	251.6 "
20 "	260.9 "
25 "	269.1 "

certain amount of pressure can also be placed on a hot water heating system provided the building is several stories high. For example a building is about 50 feet high, or the high level of the water in the expansion tank is 50 feet above the boiler, the pressure at the boiler, registered by an altitude gauge, would be about 25 pounds per square inch

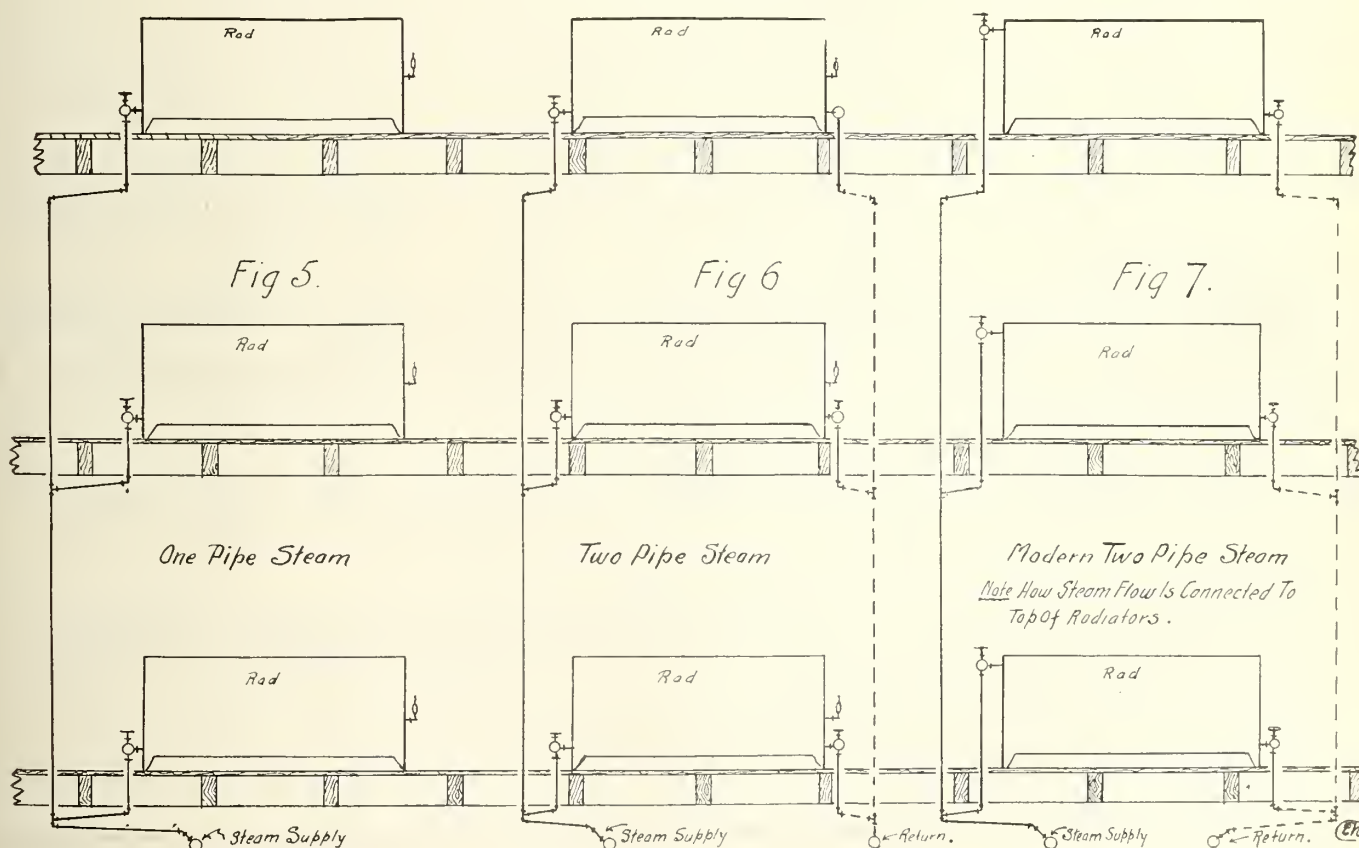
of pressure. The boiling point at that pressure would be about 270 degrees F., whereas the ordinary house is not that height and the water would not be anything like the above temperature.

Of course the use of a heat intensifier does more than assist in creating a higher temperature. But because of the lower density of the hotter water, circulation is more rapid, thereby increasing the absorption of heat units as the flame passes over and under the section or tubes in a boiler.

Just as increased head of water assists in creating a higher temperature so will a vacuum reduce the temperature or boiling point of water. Table No. 1 shows the temperature procured when water is subjected to pressures from atmospheric to 25 lbs. or equal in static pressure, creating temperatures from 212 degrees to 269.1 degrees.

Table II shows the varying temperatures of water or steam according to the vacuum created from 29.92 of vacuum to atmospheric pressure.

The question as to how a vacuum is registered or measured. A vacuum is



measured in inches, as follows: Take a tube of mercury and connect it to an air valve on a radiator, under a vacuum. The suction exerted on the tube should pull the mercury a number of inches up the tube.

But if a perfect vacuum were created it would raise the mercury 29.92 inches. Hot water or steam under a perfect vacuum would only have a temperature of 98 deg. F. But it is seldom if ever that a heating system could be kept so very tight that a perfect vacuum could be maintained. The average vapor steam or vacuum steam system will operate at a few ounces of vacuum and the water or steam will be approximately 203 to 210 degrees F.

TABLE II
Boiling Point of Water

Vacuum in inches	Boiling point of Water or Temperature of Steam
29.92 absolute vacuum	98 Deg. Faht.
29 " "	100 " "
28 " "	102 " "
27 " "	114 " "
26 " "	125 " "
25 " "	133 " "
24 " "	140 " "
23 " "	146 " "
22 " "	152 " "
21 " "	157 " "
20 " "	161 " "
19 " "	165 " "
18 " "	169 " "
17 " "	172 " "
16 " "	175 " "
15 " "	178 " "
14 " "	181 " "
13 " "	184 " "
12 " "	186 " "
11 " "	188 " "
10 " "	191 " "
9 " "	194 " "
8 " "	196 " "
7 " "	199 " "
6 " "	201 " "
5 " "	203 " "
4 " "	205 " "
2 " "	208 " "
1 " "	210 " "
0 Atmosphere	212 Sea Level

A Little About Chimneys

It would be safe to state that a great deal of trouble with a heating system can be traced to the chimney. Chimneys appear to be one part of a building most neglected, or rather that is given the least attention. Some architects just build any kind or size of chimney and place it in the most ridiculous position. As a matter of fact, the chimney is the lung, chest, breather all combined and its importance to a heating system cannot be underestimated.

The question as to the shape of a chimney is important, too. Round chimneys are always the best. They should be lined with regular standard round chimney linings and in order the next best is a square chimney, next a rectangular one, and in no case should there be any other opening for fireplaces, stoves, etc., taken off the same, and no chimney should be less than 8

TABLE III*
Size of Chimney Flues

Cubic feet Contents of Buildings	Square feet Direct Steam Radiation	Square feet Hot Water Radiation	Round Tile or iron in Inside Inches	Square or Rectangular Tile or Brick
200,000-350,000	3,500 to 5,000	5,200 to 8,000	18 " "	16 x 20 " "
10,000- 20,000	250 to 450	300 to 450	8 inches	8 x 8 inches
20,000- 45,000	450 to 700	800 to 1,200	10 " "	8 x 12 " "
45,000- 75,000	700 to 1,200	1,200 to 2,200	12 " "	12 x 12 " "
75,000-140,000	1,200 to 2,400	2,200 to 3,600	14 " "	12 x 16 " "
140,000-200,000	2,400 to 3,500	3,600 to 5,200	16 " "	16 x 16 " "

*Frank R. King, 500 Questions and Answers.

inches in diameter if round, or 8 inches if square. Neither should a rectangular chimney be too narrow. For example, a 4 x 12 would be out of proportion. A rectangular chimney should never be narrower than 25 per cent. of its width, such as say, 8 x 12 or 12 x 16 or 16 x 20, and so on. The size of a chimney governs the area, and the height the capacity; and to add to the drawing power of a chimney it is always advisable to lengthen it.

One other thing to avoid when erecting a chimney is to see that the top is always one foot at least higher than the peak or ridging of a house and that no tree or trees are so located as to constitute a "windbreak." Not long ago the writer was called in to see a heating system that as the owner said was losing its draft. It was found that a few feet from the chimney side of the house a poplar tree "windbreak" had grown up and so interfered with the chimney that it would not "draw." The trees were cut down and the system has been working well ever since.

The size of a chimney should be based upon the combined area of the rooms to be heated and the grate area of the furnace. For instance, suppose that the furnace is fitted with an 18 inch grate (round). The area then would be about 255 square inches, the chimney not less in area than one-eighth of the total area, but in no case less than 8 inches in diameter, or 8 x 8 in. square. The ac-

companying table, Number 3 will be as good a guide as possible to follow out. These figures, however, are good only for steam or hot water heating systems, and in every case where possible no offsets should be allowed in a chimney, always giving preference to glazed tile chimney linings and being round where possible. The joints should all be cleared of lime or mortar and the tile, so as to eliminate friction of air or smoke.

(To Be Continued)

PLUMBERS OF HULL AND OTTAWA NOW HAVE NEW CONTRACT

The contract was signed with individual master plumbers of Hull and Ottawa. About 60 working plumbers are involved.

NEW SCALE OF PLUMBERS' PRICES IN PORT ARTHUR

A new scale of plumbers' prices for repair and day work in Port Arthur, became effective March 1 as follows:—

Skilled mechanic, plumber or steam-fitter, \$1.50 per hour; helper, \$1.00 per hour; apprentice, 1st, 2nd, and 3rd year, fifty cents per hour. The agreement is signed by R. S. Shaw, H. R. Sime, Geo. Bell, George Purvis, James A. Stirling, H. MacRae, L. A. Greene & Co., and Lakehead Engineer Co., J. W. Barnes. The scale in Fort William is fifteen cents per hour less.

COMMENDS QUICK SERVICE ON ONTARIO SOCIETY CONVENTION REPORT AND INTERESTING PHOTOS

Hamilton, Ont.

Editor, Sanitary Engineer, Toronto,

I have read with much interest your splendid report on the last convention of the Ontario Society Domestic Sanitary and Heating Engineers. You are to be complimented on getting out such an interesting report to the trade so soon after the convention.

The photographs of various groups of men attending the convention. (as arranged exclusively by the Sanitary Engineer photographer), were also very interesting and helped one to "live the convention over again" after returning to work.

Your efforts to give the trade the best and quickest service on all such meetings are very commendable.

(Signed) A TEN YEARS' SUBSCRIBER.

Selling the Farmer City Conveniences

One of the Many Reasons Why Farming Districts Are Being Depopulated is That City Conveniences Are Not Installed in Farm Houses—Sanitary Engineers Can Cultivate This Almost Unlimited Field for New Business

By EDWIN NEWSOME, Contributing Editor Sanitary Engineer and Lecturer on Rural Sanitation for Department of Agriculture, Ontario

(Continued from previous issue)

IT is an actual fact that out of 181,978 pleasure cars (not including trucks) in use in Ontario, more than 64,000 are owned by farmers. Out of over 64,000 less than 200 of these car owners live in "plumbed" homes, and why? Because the auto salesman has said, "Get away from the drudgery of farm work, buy a car and take your wife and family out for a ride, go into the city, park your car somewhere and go to a movie show, ride around a well lighted city and see life. Don't be cooped up every day in the loneliness of the bare walls, barns or cow-byres, with their obnoxious odors, etc. I can sell you a car for a thousand dollars or so, and gasoline is cheaper than horse feed. You can pay so much down and so much per month. We can trust a man like you, Mr. Farmer, because we know every mother's son of you are producers and workers of the highest type," and so on.

And what has the farmer way back in his mind? The yard pump, the dirty, stinking privy, the back yard where all the kitchen slops are dumped, the flies, mosquitoes, the wood stove and the coal oil lamp, no hot water ready to hand, a broiling hot kitchen in summer, every time a drop of water has to be heated, no bathtub, no city comforts of any kind, in fact.

"Of course, I'll buy a car," says the farmer, "and of course I'll drive the wife and family out to see the sights of the city; anything to get away from the drudgery of such conditions." Those are the very pictures true to life that are painted in the mind's eye of every car-owner-farmer. And who's to blame? What kind of a story could a live salesman of sanitary and heating goods tell? Here's one.

"What? Buy a car? For the price of a car I can put in your home as fine a bathroom, with w.c., etc., as any city home contains. I can put a fine white cast iron enamelled sink in the kitchen fitted with nickel-plated taps, hot and cold water. I can sell to you a pneumatic water system, install a sanitary septic tank and sewage disposal system, to dispose of the waste from all the plumbing fixtures, every bit as elaborate and as sanitary as any city home is fitted up. Yes, and a furnace could be fitted up in your basement. All for the price of a car. Would you rather buy a car and travel far to enjoy the pleasures of a few fleeting hours that after all are only as drifting sand? Would you not prefer city conveniences in your home twenty four hours a day, to the imaginary and far less valuable pleasures of a few fleeting hours once or twice a week?"

A Profitable Duty

There's your duty, Mr. Member of the Sanitary and Heating Industry. Your duty and your opportunity to better conditions on the farm, to improve conditions for every mother living a life of solitary drudgery; every mother of the farmer-to-be.

Can one wonder at the depopulating of our rural district? Can one wonder at the young folk on the farm leaving home and swelling the population of our cities?

To take a trip into the country and pay a visit to a farmer whose home has already been fitted up with city home conveniences, then call upon a farmer whose family do not know the blessings of plumbing and sanitary equipment, is the most convincing argument of all that farmers do really need all such comforts as our industry can give them.

Do we sanitary and heating engineers realize that farm woman power means drudgery? Do we see the good we can accomplish from a humane standpoint by straining every nerve to help the mothers of the rising generation of farmers? It is the farmers who feed the population of our cities, the artisans, the makers of things. And if the mother is assisted, if her work is made a pleasure, then her babies are very apt to live and love their labors when they grow up, because she (even when her babies were yet unborn) was contented, happy and interested in her work.

On the other hand, what can we expect of the offspring of a mother who is nothing better than a drudge, a being who has to contend with such inconveniences as arise from having no kitchen sink, no wash basin, a dirty, stinking privy, etc., etc. The question of furnishing city convenience in every farm home is of national importance; and every health department ought to treat a farm home as they would a home in the city.

A city home without proper sanitary appliances installed therein is not tolerated. Such homes are placarded, "Insanitary, unfit for human habitation," and no city house can be erected unless a complete bathroom, kitchen sink, etc., is installed at the time it is built. Then why such conditions on a farm?

A Few of the Craft Realize the Opportunities

Not very long ago I visited a small country town in which a member of the trade has established a business and found that in less than two years he had installed 48 pneumatic water systems, and complete bathroom and kitchen con-

(Continued on Page 30)

Can You Use Some Booklets on This Subject?

SANITARY ENGINEER has a limited supply of booklets in convenient size setting forth the matter contained in this article. It will explain to your prospects the need for sanitation in rural districts and the plan of the Ontario Government for assisting farmers to pay the expense of such installations.

You will have to hurry to get your order in for some of these booklets as the supply is limited. Write the Editor, Sanitary Engineer, 143 University Ave., Toronto.

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Ridiculous Demands

ANOTHER period of inflation seems to be developing, particularly in respect to the building industries, though a halt in building progress in certain parts of the country due to high costs has put somewhat of a brake upon it in these parts. Wages are continually going up. It is urged that the increased wage payments will greatly increase consumption but the increases are all added to what somebody must pay and count just as much for the restriction of purchases as for increasing them.

There are no gains from raising money-wages except as there are inequalities in the advances, some groups of workers getting their compensation raised at the expense of others. Such benefits are neither general nor permanent, for in the long run the economic law will find a way of equalizing conditions.

There are some inequalities in money-wages but there will be more, if many of the demands for increases are met that are being made by organized labor. Particularly is this true in the building industry and in our own. The demands of plumbers, steamfitters and plasterers in many localities, particularly across the border, are so ridiculous that if granted they will certainly bring an inflation that will soon explode.

The Old Suspicion

THERE are splendid possibilities in the rural field for plumbing and heating equipment and the effort being made by the Ontario Government to improve sanitary conditions in these sections is very creditable. It is a shame that, like many other such efforts, the plan has been referred to by some as a political scheme for vote catching just prior to election. Among certain branches of the industry there has also been the feeling that such effort was done to encourage the farmer to "be his own plumber." Either lack of interest or due to the latter sentiment plumbers have not been taking as much advantage of the lectures being given by the Ontario Government as they might do. Few plumbers have attended the lectures and when approached by the Government lecturer others have shown little interest and one said "the people know where I am if they want me."

This spirit is the reason why the Ontario Government has had to take a hand in connection with rural sanitation. True it might not be profitable for plumbers to spend a great deal of time endeavoring to develop prospects in all rural districts, some of them are too sparsely settled for that, but there are many towns and villages and thickly settled rural districts where such work could be done profitably. It is being done

profitably by many progressive plumbers, but it is not done by those who employ the sentiment expressed by the plumber mentioned.

Plumbers who are keen for business realize the value of the spade-work being done by the Ontario Government lecturers and are on the job to cash in on it. A number of such plumbers have taken orders for considerable business at some of these lectures.

The old spirit of suspicion in the plumbing industry has disappeared among those who are actively digging for business. They haven't time for suspicion and talk of poor conditions, and as result they have little to complain about. The work undertaken by the Ontario Government can be turned to great advantage by plumbers—and there is no reason for its being looked upon with suspicion by any in the industry.

"Engineer Smith"

SOME recommendations worthy of attention by the industry have been made by George C. Whipple, Professor of Sanitary Engineering at Harvard Engineering School. It is pointed out that the term sanitary engineer was originally applied to engineers who had to do with sewers and drains, but now the field has expanded to include not only sewers but sewage treatment, water purification, etc. To-day the sanitary engineer must have some understanding of the relation between sanitary works and the public health and between the cost of works and sanitary value. It has been suggested that such a man should be called a public health engineer. This is merely a translation of sanitary engineer and does not seem to be worth while to multiply names and titles without adequate reason.

The suggestion has been made that sanitary engineers might better be known as civil engineers or even as engineers, just as public health officers are known as doctors. The same dignity, honor and importance might be attached to a plumber known as "Engineer Smith" as to that of "Doctor Smith" assuming, of course, that the title "Engineer" represents an engineering degree, membership in a national professional society or some other adequate standard of attainment.

"From my experience, I believe that in a health department the work of the sanitary engineer is of importance equal to that of the doctor of medicine," said Mr. Whipple, pointing out that the lack of recognition of equality is one of the reasons why some of the best young engineers hesitate to enter Public Health Service to-day.

All Eyes on the West

ONE of the most encouraging features of the present business outlook is the present crop prospect throughout Western Canada. This is an all important matter in the business interests of Canada, and the continuation of gradual improvement which has been taking place for some months past, will be gauged to some extent by the value of the crop to be harvested in Western Canada this fall.

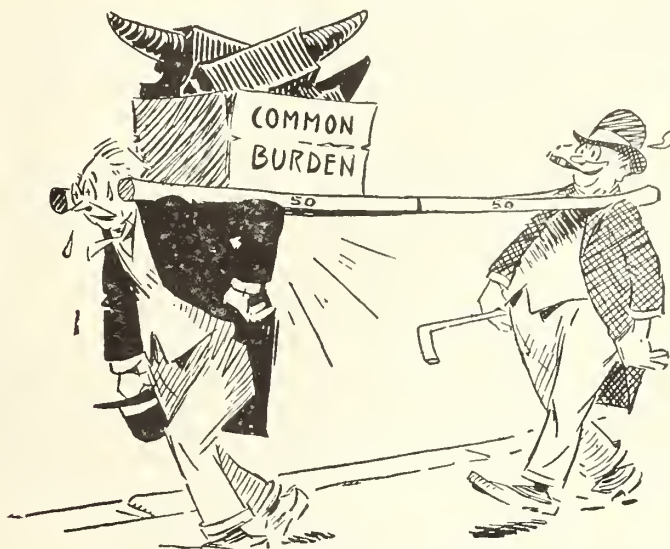
Advices from Sanitary Engineer's representatives throughout Western Canada are to the effect that the frequent rains have given good grounds for enthusiasm as to the probable crop results. It is stated that nothing but hail will prevent Alberta from duplicating 1915 in her yields. The moisture coming after the grain is fairly well up will reduce the amount of moisture carried off by the winds from now on. Tradesmen in various Western cities feel that a new era of prosperity for the West is dawning, that the long period of drought has been ended.

MINUTE MESSAGE

Number Sixteen

Written for "Sanitary Engineer" by FRANK STOCKDALE

Co-operation Series



They'd Both Get Farther If They'd Make It 50-50

IN THE picture above you have the reason why so many co-operative enterprises fall down. The illustration applies to organizations of every kind.

Sometimes it is an organization of merchants that fails to accomplish its purpose because a few men must do the work for all.

There is a limit to the strength and the patience of even the most ardent believer in the power of organized effort. In fact, there is no effective organized effort without due consideration being given to the principle of 50-50.

51-49 and other unequal or unfair divisions of labor wreck more organizations than all other things combined.

The value of organization lies mainly in the fact that many can do things that a few cannot do. The organization is weakened when any one man fails to do his share. Not only is it weakened and unable to accomplish immediate results, but its life and usefulness are made shorter.

The principle applies in your shop just as it does to any outside organization to which you may owe support. It is a big, broad, practical principle that every merchant should use to improve his store and his town. 50-50 is the business man's version of the Golden Rule.

THINK IT OVER--APPLY IT TO YOUR BUSINESS

All Rights Reserved by Sanitary Engineer for Exclusive Publication
in the Plumbing Trade in Canada

Twenty Years Ago

Following items are reproduced from the trade paper files of MacLean Publishing Co. of June, 1903:

"At the regular meeting of the Master Plumbers' Association of Toronto, A. E. McCauley was initiated."

* * * *

"Bennett & Wright Co., Ltd., are busy. They are doing the plumbing and heating in the Alexander Apartment building on University Ave. It is said that this contract is over \$50,000. The firm is making considerable alterations to premises on Queen St."

* * * *

"Members of the plumbing fraternity honored John R. Minihinnick, who was formerly in the plumbing business, on his election as president of the London Board of Trade. He is still interested in the trade having helped organize the Empire Mfg. Co. of London."

* * * *

"A meeting of members of the Toronto Master Plumbers' Association interested in baseball was held. Frank Maxwell, of Maxwell & Johnston, was appointed captain. The team will practise at the Woodbine. George Clapperton is the secretary and all challenges should be sent to him. A challenge is being issued to the Mountain (Hamilton) Association, to meet on neutral grounds in Oakville."

* * * *

"Master plumbers and steamfitters of Sydney, C.B., are now organized into an association. Frank Powers of Lunenburg, N.S., president of the National Association, was present to enthruse the new members. The following firms identified themselves with the new association: Bayer & Co., Baristo & Co., H. G. Hagen & Co., Estans & Co., E. L. Martin, Chas. Kirk, J. J. Brownlee, Keith Ball, F. H. Jones of Sydney, Thompson & Matheson, Shean Bros., Will Buchanan of North Sydney and Keith Bros., Glace Bay."

SELLING THE FARMER CITY CONVENIENCES

(Continued from page 27)

veniences in that number of rural residences and a few of the number in farm homes. This same sanitary engineer succeeded in getting a school board to change the plans of a school they were planning to build. At first the board had decided to have some outside privies built, but finally had up-to-date lavatories for girls and boys, and a separate one for teachers, all installed, and the school heated by a modern steam plant. This change was largely brought about by the fact that one of the members of the board, a farmer, whose children were going to attend the new school, took exceptions to his children using a privy when it was just as easy to install proper sanitary fixtures, w.c.'s, etc.

How Can We Procure this Business?

The question of catering to the farmer is not by any means an easy one, yet the automobile manufacturer is doing it. The average manufacturer of plumbing and

heating supplies has never given the subject of advertising the attention he ought to do. He blames the plumber, by saying, "It's no use trying to educate the plumber to become a salesman." But, as a matter of fact, I'd like to know of one who ever tried. One can pick up daily papers by the score and never see one advertisement of a modern bathroom, and no manufacturer would ever dream of incurring the cost of conducting educational classes as do auto manufacturers, typewriter, or cash register manufacturers.

A firm of auto manufacturers in Toronto have a class made up of their own workmen out of the shop and these men take up assembling cars in a special school room. Not only are these men taught all about the mechanism, but also are given sales talks and a regular course in salesmanship. Such methods have never been tried in the plumbing and heating business.

The Ontario Government is taking a great deal of interest in this question. Students, sons and daughters of farmers attending the O.A.C. are given special lectures as part of their studies relating to the why and wherefore of "A bathroom in every farm home." This government is even doing more. An experienced sanitary and heating engineer is now giving lectures to short term classes in a number of Ontario towns to farmers' sons and daughters who cannot attend the college at Guelph. This work should be followed up by the plumbing trade.

First of all, the farmers ought to see more advertisements in their farm papers describing sanitary conveniences. Next, sales articles and classes ought to be formed by the manufacturer, and a closer relationship should exist between the various branches, advertisements appearing in trade journals should contain educational "copy." Every traveler ought to have a copy of the trade journal supplied him, and he ought in turn to draw the attention of members of the craft to sales articles published from time to time. Special catalogues should be gotten up for farm trade, and each one should contain views of fully equipped bathrooms and other city conveniences, regular calls should be made on farmers, or a letter once in a while to farmers telling the story of good plumbing and heating on the farms and so on. Men calling upon farmers would require to be "hand picked," and no doubt more business could be procured from the farmer than now is.

Talk Bathrooms as an Investment

I have quoted at length all about a farmer owning a car. Now, is a car an investment in the eyes of a farmer? It may be if a high value is placed on pleasure and joy riding, but no matter from what angle the question is viewed, an auto is a constant liability, and upkeep

(Continued on page 40)



No, They Don't Burn Coal

He: "I just read an account of two girls getting lost in the Alps in mid-winter."

She: "Terrible! Were they frozen?"

He: "No, they warmed themselves on the mountain ranges."

* * * *

Always exercise a certain amount of care in sympathizing with a woman in tears. She may be having the time of her life.

* * * *

Impossible

"John, John," whispered Mrs. Congressman Blow Hard, "Wake up! I'm sure there are robbers in the house."

"Robbers in the house?" he muttered sleepily, "Absolutely preposterous! There may be robbers in the Senate, Mary, but not in the House. Absurd!"

* * * *

Missionary (to cannibal)—What makes your chief so talkative to-day?"

Cannibal—Oh, he ate a couple of barbers this morning.

* * * *

Sounded Like Home

Two young kindergarten teachers, intelligent and attractive, while riding downtown in a street car were engaged in an animated discussion. In the seat behind them sat a good-natured, fatherly-looking Irishman enjoying a nap. Finally one kindergartner inquired of the other:

"How many children have you?"

"Twenty-two," she replied. "And how many have you?"

"Oh, I have only nineteen," replied the first.

At this point the Irishman, now wide awake with astonishment, leaned forward in his seat, and without any formality, inquired in a loud voice:

"What part of Ireland did youse come from?"

* * * *

Lucille: "What is it that keeps the moon in place and prevents it from falling?"

"Buck:" "I suppose it's the beams."

* * * *

Sunday School Superintendent—"I am happy to see all these shining faces before me this morning." (Sudden application of thirty-seven powder puffs.)

News Notes From Coast to Coast

BUSINESS CHANGES

Montreal.—Lafontaine & Courtemanche, plumbers, have dissolved.

Swift Current, Sask.—Hutchinson & Morrison, plumbers, have dissolved partnership. Morrison continues.

NEW FIRMS

Hague, Sask.—H. H. Henrichs is commencing a tinsmith business here.

Kenton, Man.—Chas. A. Bell has commenced a tinsmith business here.

Ottawa, Ont.—Chas. Schwabe and Co., plumbing and heating, have opened at 471 Gladstone Ave.

PERSONAL

O. B. Mueller, president, and William Twaits, sales manager of the H. Mueller Manufacturing Co., Ltd., Sarnia, attended the convention of the American Waterworks Association in Detroit. A large number of Canadian waterworks superintendents are members and a large number of Canadians are in attendance.

PLUMBING BY-LAW FOR DISCUSSION

St. Boniface, Man.—A further reading of the new plumbing by-law, declared to have been drafted against the wishes of many St. Boniface plumbers, will take place. This by-law, which conforms to other by-laws in the Greater Winnipeg Water district, of which St. Boniface is a part, means, if it is passed, that St. Boniface plumbers will have to stock equipment to conform to the by-law.

CO-ORDINATE VANCOUVER SANITARY INSPECTION

Vancouver, B. C.—Plans for the co-ordination of the different divisions of the civic health department with a view to rendering more efficient community service have been presented to Dr. F. T. Underhill, M.H.O., and to the city clerk by Laurence Robertson, recently appointed chief inspector of the department.

If the recommendations filed with the city clerk are endorsed by the medical health officer and the city council, Mr. Robertson will be known as the sanitary inspector, the term "chief" being dropped. He will be responsible to the medical health officer for the smooth working of the five main subdivisions of the department. At the head of each of these divisions will be a deputy sanitary inspector.

Next in order of precedence will come 11 assistant sanitary inspectors, each of whom will be assigned to one particular division in the first instance.

Doings in the Plumbing and Heating Industry

FIRE LOSS

Sussex, N. B.—G. W. Myers, plumber, suffered fire loss.

MOVE TO NEW PREMISES

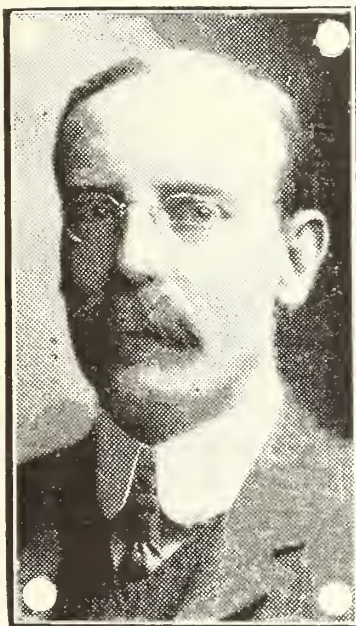
The office of Galt Brass Co., Toronto, has been moved to 85 Church Street.

CONTRACTS AWARDED

Messrs. Higgins & Large, Brampton, Ont., have plumbing and heating contracts for the new public school.

NEW FILTRATION PLANT

Kitchener, Ont.—Work on a filtration plant which will serve all the border municipalities will commence within a month. The plant will have sufficient capacity to take care of the needs of 300,000 people.



WILLIAM C. COLLS

William C. Colls, a Northwest Rebellion veteran, who died in Toronto after a few week's illness. Born at Woolwich, England, he came to Canada as a young man and answered the first call for volunteers to fight the rebels. He joined "G" Company of the Grenadiers—and fought throughout the whole of the campaign, including the battle of Batoche. Returning to Toronto, he went into business as a plumber.

NEW FIRMS

Chivers Bros. are the proprietors of a newly established plumbing business at Grimsby Beach, Ont.

ONTARIO GOVERNMENT DEMONSTRATION TRUCK HAS VISITED THE FOLLOWING PLACES

Cooksville, Clarkson, Hamilton, Milton, Palermo, Waterdown, Rockton, Sheffield, Mount Hope, Smithville, Welland Port, Vineland, Virgil, Ridgeway, Crowland, Fenwick, Marshville, Canboro, Cayuga, Selkirk, Jarvis, Tyrrell, Marburg, Delhi, Courtland, Alymer, Union, Dutton, Rodney, Ridgetown.

ENTERTAIN DOMINION RADIATOR STAFF

The Dominion Radiator Company's office staff, and heads of various departments, Toronto, were entertained to a banquet in the King Edward Hotel by the president, Joseph Wright. Peter McMichael, the retiring managing director, was presented with a personal gift by Mr. Wright, and a presentation was also made by J. N. Shenstone on behalf of the board of directors. A gift from the staff was presented by ex-Alderman Sam Ryding.

E. G. PARKER IS HEAD OF WESTERN C. M. A.

Winnipeg.—E. G. Parker, manager of the Royal Crown Soap Company, Winnipeg, was elected chairman of the prairie division, Canadian Manufacturers' Association, at the annual meeting held in the Royal Alexandra Hotel. H. B. Lyall was elected vice-chairman. About 100 members of the association attended the meeting.

Major E. G. Rogers, the retiring chairman, presented the annual report of the executive in which he recommended a meeting of members of the prairie division from Manitoba, Saskatchewan and Alberta, be held outside of Winnipeg at an early date for the purpose of considering problems relating to industrial development in the West.

PLUMBERS HAVE NARROW ESCAPE

Robert Paton, superintendent for Bennett & Wright, of Toronto, and Edward Robinson had a miraculous escape from death when a car in which they were driving to Delaware turned turtle and pinned both underneath. Mr. Paton escaped with a few minor bruises, while Mr. Robinson is confined to his bed at his home in Toronto, suffering with severe bruises about the head.

The two men were delivering a bath tub to a home in Delaware and when near their destination one tire blew up. The car immediately turned over.

Market Conditions and Tendencies

Price Trend on Sanitary and Heating Supplies

Markets at a Glance

FEWER price changes have occurred during the past two weeks than in any previous half-month this year. The market is becoming more steady as far as prices are concerned. Dealers could handle more business than they have been getting lately and some centres report that no improvement has been noted over last week's business. Districts situated in Western Canada report a slight increase in trade. The crop outlook has no doubt got something to do with the trade stimulation that is being felt.

The advance in soil pipe has been noted in Quebec and Western Canada in this issue. This took place a few weeks ago in Ontario centres. Advances in some lines of scrap are noted, also some declines in these lines, but no changes of note, either way are recorded. A change in discount on conductor elbows, cut offs, strainers, tubes and conductor hooks took place which makes these goods about ten per cent. higher in price.

Some centres report that credit conditions and collections are becoming better.

Montreal Markets

MONTREAL, June 14.—Prices which have been in force for some little time back have been maintained almost without exception during the past week. The sole change of any note is to be found in the scrap metal market where easier quotations are issued on several metals, following the trend of primary metal markets.

Trading in most lines continues to improve steadily, but on all sides is heard the same tale—the season has been so slow in opening up that things are still a month behind where they should be.

ENAMELLED WARE TRADING IS FIRMING UP

Montreal.

As in other lines connected with the building trade, business in enamelled ware is reported to be on the up-grade, though the demand is later this season than is usually the case, the late spring accounting for this. Prices are unchanged as follows:

ENAMELLED WARE—

Sinks, flat rim—	1 only	2 only	3 only
16 x 24	\$ 7 50	\$ 7 40	\$ 7 30
18 x 30	8 70	8 60	8 50
20 x 30	9 90	9 80	9 70
Bath tubs, roll rim, 4, 4½, 5 feet, 24 to 30 in. wide	51 40		
Bath tubs, 5½ feet.	57 10		
Lavatories—			
17x19 in. Apron F139 or P4045.....	15 30		
18x24 in. Apron F154 or P2845 or P3847	23 60		
18x21 in. Apron F169 or P4205.....	17 60		
17x19 in. Roll rim. F241 or P4345.....	12 60		
Less 30 per cent.			

STEADY TONE IS MAINTAINED IN CEMENT MARKET

Montreal.

Building activity in this district is providing a steady call for cement, according to local distributors, who state that sales are good at the present time. The following prices remain in force:

CEMENT—

Car load lots, per bag, F.o.b. steam cars	0 86
Per Bag, delivered	0 94
Less car lots, per bag, F.o.b. yard.....	0 94
Per bag, delivered	1 04
Rebate of 20 cents for empty bags.	

WROUGHT PIPE QUOTATIONS REMAIN UNCHANGED

Montreal.

Wrought pipe trading is reported as good at prices brought into effect late in April, as follows:

WROUGHT PIPE					
Price List No. 59. April 24th, 1923.					
Standard Butt-weld Pipe S/C per 100 feet.					
Size	Steel Blk.	Gen. Blk.	Wrot. Blk.	Iron Blk.	Galv.
1/8 in.	6.00	8.00	.....	.....	.....
1/4 in.	4.32	6.30	7.56	9.60	.....
3/8 in.	4.32	6.30	7.56	9.60	.....
1/2 in.	5.53	6.97	7.82	9.35	.....
3/4 in.	6.79	8.40	9.55	11.27	.....
1 in.	9.69	12.07	13.77	16.32	.....
1 1/4 in.	13.11	16.33	18.63	22.05	.....
1 1/2 in.	15.68	19.53	22.28	26.40	.....
2 in.	21.09	26.27	29.97	35.52	.....
2 1/2 in.	33.35	41.54	.....	.....	.....
3 in.	43.61	54.32	.....	.....	.....
3 1/2 in.	56.12	69.00	.....	.....	.....
4 in.	65.49	81.75	.....	.....	.....
Standard Lap-weld Pipe S/C per 100 ft.					
Size	Steel Blk.	Gen. Blk.	Wrot. Blk.	Iron Blk.	Galv.
2 in.	24.42	29.60	33.30	38.35	.....
2 1/2 in.	36.27	44.46	50.31	59.09	.....
3 in.	47.43	58.14	65.79	77.27	.....
3 1/2 in.	57.04	69.92	79.12	92.92	.....
4 in.	67.58	82.84	93.74	110.09	.....
4 1/2 in.	78.74	96.52	1.14	1.33	.....
5 in.	91.76	112.48	1.33	1.55	.....
foot foot					
6 in.	1.19	1.46	1.73	2.02	.....
7 in.	1.55	1.90	2.21	2.62	.....
8 in.	1.63	2.00	2.33	2.75	.....
8 in.	1.87	2.30	2.68	3.17	.....
9 in.	2.23	2.83	.....	.....	.....
10 in.	2.14	2.62	3.04	3.58	.....
10 in.	2.76	3.38	3.91	4.61	.....

CLOSET COMBINATIONS FINDING STRONGER DEMAND

Montreal.

Trading in closet combinations, bowls and tanks, is opening up gradually in the local field, although still much behind other years in this respect. The past week has seen no variation in quotations from those quoted in previous issues, which are as follows:

CLOSET COMBINATIONS—

Low Down Outfits,	each
Closet, standard outfit, oak.....	24 00
Do., post hinge seat	25 00
Do., oak vitro or Pussyfoot.....	24 50
Do., post hinge seat	25 50
Do., mahogany vitro or Pussyfoot, post hinge seat and cover	28 00
Do., vitreous china, oak post hinge seat and cover	29 00
Do., vitreous china, mahogany post hinge seat and cover	30 00
Do., white vitro or Pussyfoot, mahogany post hinge seat and cover	30 00
Do., enamelled iron tank, oak post hinge seat and cover	29 50
Do., enamelled iron tank, mahogany post hinge seat and cover	29 50
Add for 3/4" valve on supply pipe.....	1 25
Add for spud	0 60
Add for reverse trap bowl	1 50
Add for syphon jet bowl.....	7 00
Deduct for supply pipe	0 80
Deduct for floor hinge	0 60

CLOSET BOWLS—

Richeieu bowl	8 00
Washdown bowl with spud	9 50
Reverse trap bowl with spud.....	9 50
Syphon jet bowl with spud.....	15 00

CLOSET SEATS—

Oak post hinge seat and cover.....	3 85
Oak wood strip seat and cover.....	3 50
Mahogany finish post hinge seat and cover	4 05

CLOSET TANKS—

Low down, oak vitro or Pussyfoot with fittings less seat	12 00
White vitro or Pussyfoot with fittings, flush elbow and supply	16 50
Vitreous china tank with fittings, flush elbow and supply	16 00
Enamelled iron with fittings, flush elbow and supply	16 00

NUMEROUS LOWER PRICES ARE NOTED IN SCRAP MARKET

Montreal.

A number of lower prices are noted in the scrap metal market this week, the changes including the following: red brass, from 2½ to 2c.; light copper, from 10½ to 10c.; heavy copper, from 13½ to

12½c.; rubber shoes, from 2½ to 2c.; heavy melting steel, from \$13 to \$12; No. 2 busheling, from \$7. to \$6, and No. 1 machinery cast, from \$24 to \$21. Local market quotations are as follows:

SCRAP—

Automobile Tires	0 50
Rubber Shoes	0 02
Yellow brass	0 07½
Red brass	0 09½
Light brass	0 05
Scrap zinc	0 05
Lead, heavy	0 05
Lead, tea	0 03¾
Light copper	0 10
Heavy copper	0 12½
Wrought iron, R. Rd. No. 1 per gr. ton	15 00
Malleable scrap (ton)	18 00
Pipe scrap (ton)	10 50
Heavy melting steel	12 00
No. 2 busheling	6 00
Boiler plate	14 00
No. 1 machinery cast	21 00

STRONG DEMAND CONTINUES IN CORRUGATED SHEETS

Montreal.

Corrugated sheeting continues to find a good demand in the local market, quotations being the same as those which have ruled for some time past, which are as follows:

CORRUGATED SHEETS—		Per 100 sq. ft.
No. 28 gauge	7 00	
No. 26 gauge	7 50	
No. 24 gauge	10 00	
No. 22 gauge	12 50	
No. 20 gauge	14 00	
No. 18 gauge	19 00	
Less 10 per cent.		
Lighter than 24 gauge and wider than 27 ins.,		
75 cents per square extra.		

STEADY ACTIVITY REPORTED IN METAL LATH MARKET

Montreal.

The metal lath market shows no change during the past week, trading being fairly steady and prices remaining unchanged at the following levels:

METAL LATH—		per sq. yd.
Painted—		
26 gauge	23c.	
24 gauge	25c.	
32 gauge	32c.	
Galvanized, 10c. per sq. yd. extra.		

COTTON WASTE MARKET SHOWS STEADY IMPROVEMENT

Montreal.

The cotton waste market has improved steadily since the opening of navigation, the continually increasing number of ships coming into this port enlarging the market for wastes. Prices are maintained at the following levels:

COTTON WASTES—		Per lb.
Cream polishing		0 24
White, XXX extra		0 20
White, XX grand		0 18½
White, XLCR		0 17
X Empire		0 15½
X Press		0 14
Colored—		
Fancy		0 15½
Lion		0 14
Standard		0 12½
Popular		0 10½
Keen		0 08½
Wool Packing—		
Arrow		0 25
Axle		0 21
Anvil		0 17
Dominion Wipers—		
White cotton		0 20
Colored cotton		0 13½
F.o.b. Toronto and Montreal.		

LIGHTER TRADING REPORTED IN SHEETS AND PLATES

Montreal.

The summer slackness is beginning to make itself felt locally in the sheet and plate market, although there is still a good volume of business being

transacted. While indications in the English primary markets point towards an increase in price this has not been felt locally as yet, the following quotations still ruling here:

GALVANIZED SHEETS—

	Queen's Head	Fleur de Lis
18-20 gauge	6 90 7 40	6 65 7 15
22 gauge	7 15 7 65	6 90 7 40
24 gauge	7 25 7 75	7 00 7 50
26 gauge	7 50 8 00	7 25 7 75
28 gauge	7 75 8 25	7 50 8 00

Other Brands—

10½ oz.	7 50	7 75
28 U. S. gauge	7 20	7 50
26 U. S. gauge	6 55	7 10
24-22 gauge	6 60	6 85
20-18 gauge	6 40	6 50
16 gauge	6 25	6 35

Above prices are for ½ ton lots in English iron and 1000 lb. lots in American iron with an extra charge of 25c. for less quantities. Extra for sheets 3 ft. wide, 28 gauge and 10½ oz., 25c. per 100 lbs.

Further extra for sheets 4 ft. wide according to gauge.

TIN PLATE—

20 x 28 x 100 lbs. basis	15 50
20 x 28 IC, 112s	16 00
20 x 28 IX, 112s	18 00
20 x 28 IXX, 56s	11 00
20 x 28 IXXX, 56s	12 00

TERNE PLATE—

20 x 28 IC, 112s, 200 lb.	14 50
20 x 28 IC, 112s, 214 lb.	15 00

CANADA PLATE—

Half bright 52s	5 50
Half bright 60s	5 60
Blued 52s	5 90
Blued 60s	6 00
Welsh, polished, 60s	7 35
Welsh, polished, 52s	7 10
Galvanized, 52s	8 00
Galvanized 60s	8 50

SOIL PIPE AND FITTINGS ARE AT HIGHER LEVELS

Montreal.

Reductions in the discounts on several sizes of soil pipe and fittings are announced this week. On pipe the former discount was 33-1/3 per cent. and on the fittings 45 per cent. Discounts on 8-inch pipe and fittings remain without change, the following being the revised list of discounts:

SOIL PIPE—		
2 and 3 inch	20%	
4 inch	25%	
5 and 6 inch	20%	
8 inch	net	
FITTINGS—		
2 to 6 inch	37½%	
8 inch	net	

QUIET TONE PREVAILING IN RADIATION GOODS

Montreal.

The radiation goods market is without feature this week, a quiet tone prevailing. Prices are at the same levels as have ruled for some time past, as follows:

RADIATORS AND BOILERS—

Radiator list prices are for 1, 2, 3, 4 and 5 column radiators, per sq. ft.
45 in. to 38 in., \$1; 32 in., \$1.10; 30 in., \$1.15; 26 in., \$1.20; 23 in., \$1.26; 22 in., \$1.30; 20 in., \$1.36; 18 in., \$1.40; 16 in., \$1.50; 14 in., \$1.55; 13 in., \$1.60. Discount 44 per cent for hot water, and 45 per cent. for steam.
Wall radiators—5 ft., \$1.15; 6 ft., \$1.10; 7 ft., \$1.05; 9 ft., \$1.05; 12 ft., \$1.05; Discount 41 per cent.

Boilers—Round & water boilers, sizes from 0 to 10, 52 per cent. off list. Square or sectional hot water or steam boilers, 15 in., 3 per cent. with Ontario Government trimmings, list. Square or sectional water boilers, 19 in. to 36 in., 8 per cent. Square or sectional steam boilers, 19 in. to 26 in., 5 per cent. Ontario Government trimmings, list plus 7 per cent. Square or sectional water or steam boilers, 48 in., list plus 10 per cent. With Ontario Government trimmings, list plus 18 per cent.

Round steam boilers, standard trimmings, 16 per cent. Ontario Government trimmings, 13 per cent.

F.o.b. Montreal, Toronto, Guelph.

BAR PRODUCTS MARKET SHOWS NO PRICE ALTERATIONS

Montreal.

Steady activity continues in the local bar product market. Prices have not undergone any alterations for some weeks past, remaining at the following levels:

IRON AND STEEL—

Common bar iron, 100 lbs.	3 95
Refined iron	5 45
Irish finish machinery steel	4 00
Mild steel	3 95
Single reeled machinery steel	5 50
Band steel	3 95
Sleighshoe steel	3 95
Spring steel	6 00
Tire steel	4 15
Harrow tooth steel	3 80
Toe caulk steel	4 85
Mining tool steel, per lb.	0 19
Black Diamond tool and cast steel, per lb.	0 19

NOTE.—Refined iron is approximately \$1.50 per cwt. over base, but fluctuates owing to unsettled market.

Band steel in scroll bundles, 50c per 100 lbs. extra.

Iron and steel 3-16 in. and thinner, 50c per 100 lbs. extra.

LITTLE CHANGE IS NOTED IN INGOT METAL MARKET

Montreal.

The metal market generally has been quiet during the past week with indications that the bottom has been reached in most lines and there are signs of a slight improvement evident. It is probable that there will not be any marked change from present levels until buying asserts itself once more but with confidence restored this should be more or less in evidence in the near future.

TIN.—The changes in the price of this metal have been only nominal and do not indicate any particular trend in either direction. The market may be termed as dull and nominal as there is little buying demand, although, should there be orders of any volume, this would be reflected in the price. With hand-to-mouth buying existing as at present little change in price may be expected. The local market is quiet at 48½ cents per pound.

COPPER.—This metal has recorded some improvement this week, the London market advancing daily and New York also being higher. Sales of metal for export are reported to be fair and with hope for a settlement of the reparations question it is thought that this will be followed by a good demand from Europe. Electro is now quoted at 15½ to 15¾ cents delivered and the demand is good at this level. The local market is firm at 20½ cents for electro and 20 for casting.

LEAD.—This metal remains remarkably steady, the London price showing a change of only five shillings per ton in the past ten days while New York is also practically unchanged. Demand and supply appear to be fairly well balanced and consumption remains quite large. The local market is quiet at 8¼ cents per pound.

SPELTER.—This metal is really the weakest on the list, owing to heavy production in the U. S. A. and fairly free offerings from the continent. This metal has also been affected by the Ruhr situation and it looks as though East St.

Louis will go to six cents. Production on this side will have to be curtailed unless the situation in Europe improves. The local market is quiet at 9 to 9¼ cents per pound.

ANTIMONY.—Offerings from China are still fairly plentiful but the lower price has not induced much response, and until demand improves there is not likely to be much advance. The spot situation

is not affected to the same extent, as prices have not followed the full decline on export from China. The local market is quiet at 9 cents for high-grade English and 8¼ cents for Chinese.

ALUMINUM.—The situation is unchanged in this metal, a quiet tone continuing to prevail in the local market where the price remains at 24 cents per pound.

Toronto Markets

TORONTO, June 13.—The past two weeks have seen fewer changes in prices than have occurred for some months past, declines occurring only in heavy melting scrap steel and No. 1 composition.

Advances have taken place in some lines of scrap metals, including malleable scrap rails, No. 1 cast, stove plate, heavy and light copper, red brass turnings, and tea lead.

Boiler tube prices have been adjusted, some sizes advancing while others declined.

Local dealers feel that business has not been what it should have been during the past two weeks, and blame the late season for any dullness that has occurred.

The discount on conductor pipe elbows, outlets, tubes, strainers, cut offs and conductor hooks has been changed from 65 and 5 per cent. off list to 50 and 10 per cent. discount.

Some centres report that collections have been slightly improved of late.

SEVERAL CHANGES ARE MADE IN PRICES OF SCRAP METALS

Toronto.

Heavy melting steel declines from \$17 to \$16, and No. 1 composition, from \$11.50 to \$10.75.

Advances have been made as follows: Mal. scrap, \$15 to \$17; rail scrap, \$14.50 to \$16; No. 1 cast, \$20 to \$21; stove plate, \$15 to \$18; heavy copper, \$13 to \$14; light copper, \$10 to \$10.50; red brass turnings, \$8.50 to \$10, and tea lead, 3¼ to 4c. See list of present prices as follows:

SCRAP MATERIALS— f.o.b. Toronto

Scrap Iron		
Heavy melting steel.....	15 00	16 00
Scrap pipe	9 00	10 00
Steel turnings	12 50	13 50
Malleable scrap	16 00	17 00
Rails, scrap	15 00	16 00
Net tons—		
No. 1 cast	20 00	21 00
Stove plate	17 00	18 00
Car wheel (std.).....	16 00	17 00
Scrap Metals		
Heavy copper wire	14 00	.....
Light copper	9 50	10 50
No. 1 composition	9 75	10 75
Red brass turnings	9 50	10 00
Light brass	5 00	5 50
Heavy yellow brass.....	7 00	8 00
Heavy lead	5 25	5 75
Tea lead	3 75	4 00
Hard lead	5 25	5 75
Scrap zinc	5 00	5 75
Scrap Rubber		
Boots and shoes	2 25	2 50
High rubber boots.....	1 75	2 00
Auto tires	0 35	0 50
Solid tires	0 75	1 00
Inner tubes, mixed.....	2 50	3 00
Pelings, mixed	1 00	1 25

LEAD AND ZINC GOODS REMAIN UNCHANGED IN PRICE

Toronto.

Business in lead and zinc goods during past two weeks has been fairly good. Some dealers report that they could

handle much larger quantities than are being called for at present.

LEAD AND ZINC GOODS—

Lead pipe, per 100 lbs., up to 2".....	14 50
Do., 2" to 8"	15 50
Do., 8" and over.....	16 50
Lead waste, per 100 lbs.....	15 50
Note—Lead pipe is subject to a discount of 10 per cent.	
Lead traps and bends	15%
Lead wool, lb.	0 14½
Lead sheets, 2½ lbs., sq. ft. per lb.....	0 12½
Lead sheets, 3 to 3½ lbs.....	0 11
Do., 4 to 8 lbs., sq. ft. lb.....	0 10
Cut sheets, ¾c. per lb. extra.	0 11½
Cut sheets, to size, 1c. per lb. extra.	0 12½
Solder, guaranteed, lb.	0 32
Do., strictly, lb.	0 30
Do., commercial	0 28¼
Do., wiping	0 30
Do., wire	0 37
Zinc sheets, casks, lb.....	0 11¾
Do., do., less, lb.....	0 12¼

COKE TIN PLATES SELLING WELL

Toronto.

High class English coke tin plates have advanced 4 pence per box. This change has not altered prices locally as yet, but it has had a tendency to firm up prices in these grades.

PLATES. (COKE TIN)—

20x28 100 lbs. basis, box.....	15 50
20x28 IC, 112s, box.....	16 00
20x28 IX, 112s, box	18 50
20x28 IXX, 56s, box	10 50
20x28, IXXX, 56s, box.....	11 50
20x28, IC Terne, 112s, box.....	16 00

PLATES (CHARCOAL TIN)—

20x28, IX, 56s, box.....	8 50
20x28, IXX, 56s, box.....	9 90

INGOT METALS ARE STILL FIRM IN PRICE

Toronto.

No price changes have occurred on ingot metals. Markets have felt a fairly quiet period in these lines since last issue of Sanitary Engineer.

INGOT METALS—

Copper \$18.00; Tin \$46.00 to \$48.00; Lead \$8.00 to \$8.25; Spelter \$10.00 to \$10.25; Antimony, \$8.25 to \$8.75; Aluminum, \$23.00 to \$25.00.

BRASS GOODS AND LAVATORY FITTINGS

Toronto.

No price changes have been made in brass goods and lavatory fittings. A few new lines of Quatern goods have been added to the lists given herewith:

BRASS GOODS—

No. 3825 Compression, complete with tails	3 75
No. 4 Std. Comp. Double Bath, No. 3829 F	4 46
Ditto with China Index, No. 3830F.....	4 92
Quick Opening—	
Brass handle on top, No. 3850 F.....	4 90
China handle on top, No. 3850 F.....	5 52
Quatern Top China Hdle. A3200.....	5 52
Brass handle on side, No. 3851F	4 95
(less Jewell's cup)	
China handle on side No. 3852 F.....	5 45
(less Jewell's cup)	
Quatern Side China Hdle. A3500.....	5 45
No. 4½ Fuller, brass handle, No. 3862...	6 43
A2395 Mueller type Shower Faucet.....	9 25
¾ in. N. P. Brass Supply Pipes.....pair	2 20
½ in. N. P. Brass Supply Pipes.....pair	2 30
½ in. Galvanized Iron Nickle Plated Supply Pipes	1 75
1¼ or 1½ Overflow and Waste, 19 gauge, N. P. on rough	3 20
1½ T.B.L. Overflow and Waste, 19 gauge, N. P. on the rough	4 15

LAVATORY FITTINGS—

Riley Basin Cocks China Index, per pair	7 00
Riley Jr. Basin Cocks, China Index, per pair	6 00
Adanac Basin Cocks, Brass Handle, No. 3632, per pair	4 68
Adanac Basin Cocks, China Handle, No. 3633, per pair	5 20
Quatern Side China, Hdle. A2000.....	5 20
Quick Opening Basin Cocks, Brass Hdle. No. 3630, per pair	3 70
Quick Opening Basin Cocks, China Handle, No. 3633, per pair	4 28
Quatern Top China Hdle. A1900.....	4 28
Fuller No. 0 Basin Cocks, Brass Handle, No. 3650, per pair	4 10
Fuller No. 0 Basin Cocks, China Handle No. 3651, per pair	5 04
Midget No. 0 Basin Cocks, No. Index, No. 3623 per pair.....	3 14
Midget No. 0 Basin Cocks, With Index, No. 3623, per pair	3 45
¾ in. N.P. Brass supplies to wall or floor	2 20
¾ in. Galvd. supplies N. P.....	1 80
1¼ in. N.P.S. Traps to floor No Vent 20G No. 4458	3 46
1¼ in. N.P.S. Traps to floor with Vent 20G No. 4462	4 53
1¼ in. N.P.P. Traps, No Vent 20G No. 4450.....	2 74
1¼ in. N.P.P. Traps No Vent Toronto By-law No. 4450	2 97
1¼ in. N.P.S. Traps with Vent Toronto By-law No. 4462	4 98
1½ in. N.P.S. Traps with Vent Toronto By-law No. 4462	6 67
2 in. N.P.S. Traps with Vent Toronto By-law No. 4462	14 00
Patent Overflow basin plugs	0 71
Pop up waste	5 00
Unique waste China Knob	5 50
Unique waste China Index	5 00
1¼ in. Deep Seal Trap No Vent.....	3 75
1¼ in. Deep Seal Trap No Vent	6 00
1¼ in. Elliptic Trap	6 50
1½ in. Elliptic Trap	9 00
Whirlpool N.P. Traps list prices less...	15%
½ in. Lever Handle, Stop and Waste, solid key, No. 3969	0 83
½ in. Lever Handle, Stop and Waste, pin cheek, lose key, No. 4032	1 04
½ in. Lever Handle, Stop and Waste, pat. cap. loose key, No. 4044.....	1 21
½ in. Boiler Drain Cocks 3571.....	0 80

SOIL PIPE AND FITTINGS UNCHANGED

Toronto.

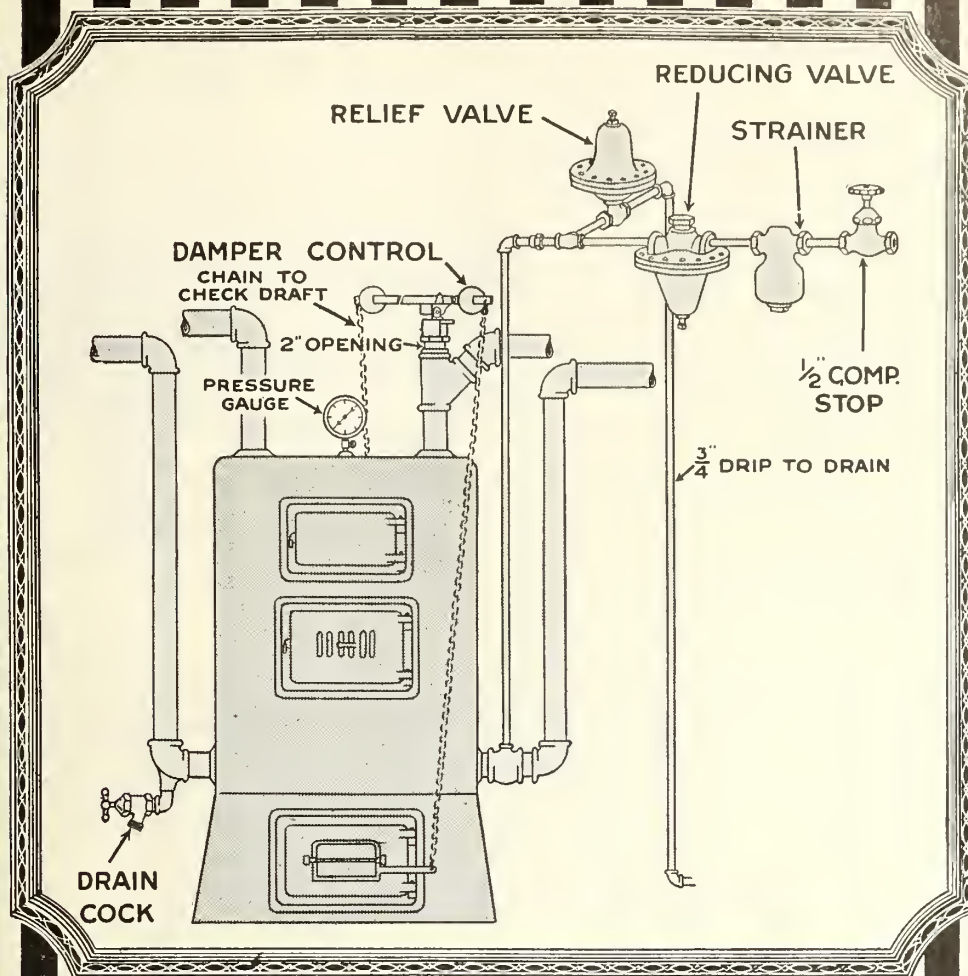
A steady demand is felt locally for soil pipe and fittings. The advance in price of a short time ago has not noticeably slowed down business.

SOIL PIPE AND FITTINGS—

2 inch	Less 20%
3 inch	Less 20%
4 inch	Less 25%
5 and 6 inch	Less 20%
8 inch	net

FITTINGS—

8 inch fittings.....	net
2 to 6 inch	Less 37½%



Mueller Automatic Hot Water Heating System

The **MUELLER** Automatic System of Hot Water Heating, consisting of a **MUELLER** Water Reducing Valve, Relief Valve, Water Strainer, etc., combined with a Damper Control has met an urgent demand for a pressure system, free from danger. It is compact, easily installed, dependable in operation and makes the simplest, most effective and satisfactory system on the market today.

The "Mueller System" has these important advantages: (1) Quickly installed on either new or old systems; (2) Water always fresh; (3) Rapid circulation; (4) Entirely automatic; (5) Requires less fuel; (6) No expansion tank; (7) Perfectly safe; (8) Absolutely dependable.

Write for special booklet on this subject. Prices on request.

H. MUELLER MFG. CO., LIMITED, SARNIA, ONT.

Water, Plumbing and Gas Brass Goods and Tools.

American Factory at Decatur, Ill., U. S. A.

Branches, New York and San Francisco

Mueller Metals Co., Pt. Huron, Mich., Makers of "Red Tip" Brass Rod; Brass and Copper Tubing; Forgings and Castings in Brass, Bronze and Aluminum; also Screw Machined Products.

BOILER TIN PLATES HAVE FAIR SALE

Toronto.

Fairly good sales have been felt locally in tin plates used on boiler work and milk can manufacturing.

BOILER TIN—

	Small Lots Per C. lbs.	Case Lots
14x60 IXX, 56 sheets per case..	12 50	12 00
14x60 IXXX,	12 50	12 00
TINNED SHEETS FOR MILK CANS—		
16½ x 41¼, 18 ga.	9 65	9 15
21 x 41¼, 18 ga.	9 65	9 15
30 x 72, 20 ga.	14 50	14 00
30 x 45¼, 2 ga.	10 15	9 65
30 x 50, 22 ga.	10 25	9 75
30 x 54, 22 ga.	10 30	9 80
30 x 78, 22 ga.	10 35	9 85
30 x 72, 22 ga.	15 00	14 50
36 x 84, 22 ga.	15 75	15 25
42 x 84, 22 ga.	15 75	15 25
48 x 96, 22 ga.	16 50	16 00
30 x 50, 24 ga.	10 25	9 75
30 x 54, 24 ga.	10 30	9 80
30 x 58, 24 ga.	10 35	9 85
30 x 72, 24 ga.	15 00	14 50
36 x 84, 24 ga.	15 00	14 50
42 x 84, 24 ga.	15 75	15 25
30 x 72, 26 ga.	15 50	15 00

ADJUSTMENTS HAVE BEEN MADE IN PRICES OF BOILER TUBES

Toronto.

Some price adjustments have been made in prices of boiler tubes. Some prices have been raised slightly and some have been lowered. See list herewith:

BOILER TUBES—	Seamless	Lapweld
1 inch	20 00	....
1¼ inch	22 00	....
1½ inch	24 00	....
1¾ inch	24 50	....
2 inch	22 00	19 50
2¼ inch	24 50	....
2½ inch	29 00	23 50
3 inch	34 00	30 00
3¼ inch .....	....	37 00
3½ inch	39 50	35 00
4 inch	50 00	45 00
Prices, per 100 ft., f.o.b. Montreal.		

WROUGHT IRON BUTTWELD AND LAPWELD PIPE

Toronto.

Prices on list Number 59, dated April 24th, 1923, covering lapweld and butt-weld iron pipe are correct, no changes have been made.

Price List No. 59. April 24th, 1923.

Standard Butt-weld Pipe S C per 100 feet.				
Size	Steel Blk.	Gen. Galv.	Wrot. Blk.	Iron Galv.
1/8 in.	6.00	8.00	....	....
3/8 in.	4.32	6.30	7.56	9.60
1/2 in.	4.32	6.30	7.56	9.60
5/8 in.	5.53	6.97	7.82	9.35
3/4 in.	6.79	8.40	9.55	11.27
1 in.	9.69	12.07	13.77	16.32
1¼ in.	13.11	16.33	18.63	22.08
1½ in.	15.63	19.53	22.28	26.40
2 in.	21.09	26.27	29.97	35.52
2½ in.	33.35	41.54	....	....
3 in.	43.61	54.32	....	....
3½ in.	56.12	69.00	....	....
4 in.	66.49	81.75	....	....
Standard Lapweld Pipe S C per 100 ft.				
Size	Steel Blk.	Gen. Galv.	Wrot. Blk.	Iron Galv.
2 in.	24.42	29.60	33.30	38.85
2½ in.	36.27	44.46	50.31	59.09
3 in.	47.43	58.14	65.79	77.27
3½ in.	57.04	69.92	79.12	92.92
4 in.	67.58	82.84	93.74	110.09
4½ in.	78.74	96.52	1.14	1.33
5 in.	91.76	112.48	1.33	1.55
6 in.	1.19	1.45	1.73	2.02
7 in.	1.55	1.90	2.21	2.62
8 in.	1.63	2.00	2.33	2.75
9 in.	1.87	2.39	2.68	3.17
10 in.	2.31	2.83	....	....
10L in.	2.14	2.62	3.04	3.58
10 in.	2.76	3.38	3.91	4.61

CHANGE IN PRICE OF CONDUCTOR ELBOWS

Toronto.

The discount on conductor elbows, tubes, cut-offs, strainers, outlets and conductor hooks, is now 50 and 10 per cent.

Good sales have been made in these lines during the past two weeks.

EAVESTROUGH—

O. G. round and half round, per 100 ft. 8 in., \$16.90; 10 in., \$18.70; 12 in., \$22.20; 15 in., \$35.50; 18 in., \$45.00.

O G. Square bead, per 100 ft.; 8 in., \$15.90; 10 in., \$17.70; 12 in., \$21.20; 15 in., \$34.50; 18 in., \$44.00.

Discount 65 and 5 per cent.

CONDUCTOR PIPE—Round, Plain and Corrugated, per 100 ft.; 2 in., \$18.40; 3 in., \$22.30; 4 in., \$29.60; 5 in., \$48.00; 6 in., \$58.80.

Discount 65 and 5 per cent.

CONDUCTOR ELBOWS—Plain or corrugated, price per doz. 2 in., \$5.25; 3 in., \$6.00; 4 in., \$10.50; 5 in., \$24.00; 6 in., \$29.00.

Discount 50 and 10 per cent.

Outlets, tubes, strainers, cut offs, and conductor hooks, Discount 50 and 10 per cent.

COMPRESSION VALVES AND BIBBS

Toronto.

Former discounts are still in force on compression valves and bibbs.

VALVES AND BIBBS (Compression)—

Compression work, standard	45%
Fuller work, standard	30%
Quick opening compression bibbs	48%
Bath cocks, compression	41%
Jenkins iron body, gate	12 and 10%
Bath cocks, quick opening	41%
Basin cocks, quick opening	46%
Flatway stop and waste cocks, std.	54%
Roundway stop and waste cocks, standard ..	54%
Brass steam cocks, standard	50%
Radiator valves, standard	55/25%
Do., removable discs	55/25%
Globe, angle and check valves, standard ..	25%
Gate or straightway	25%
Emco Globe valves, standard	23%
E. M. Co. Globe Valves, other sizes	28%
Emco vertical check valves	23%
Emco check valves, swing ¾, ½, 1"	28%
Emco check valves	28%
JMT check, angle and globe, plus	5%
Model C	net list
Standard	net list

FIRM NOTE MAINTAINED ON GALVANIZED SHEETS

Toronto.

There is no change in prices of galvanized sheets. A firm note prevails and is being maintained in all the following lines:

GALVANIZED SHEETS—

	Premier	Apollo
10½ oz.	6 90	7 40
U. S. 28 base	6 50	6 90
U. S. 26 base	6 30	6 60
22 and 24	6 05	6 45
18 and 20	6 05	6 30
16	5 90	6 15
12 and 14	5 75	6 00
28 gauge, base	7 50	8 00
26	7 35	7 60
24	7 05	7 30
22	6 90	7 15
28 gauge base	7 25	7 50
26	6 85	7 10
24	6 55	6 80
22	6 40	6 65

An extra 20c. per 100 lbs. is charged for Keystone and Premier brands copper-bearing sheets.

An extra is now charged on galvanized sheets. 10½ oz. and 28 ga., when shipped out in sheets 3 feet wide. The extra charged over prices shown in 20c. per 100 pounds.

TANK STEEL PLATES—

¾-in. and heavier, base	3 60
3-16 in.	3 95

BLUE ANNEALED SHEETS—

10 gauge, base	4 50	4 60
12 gauge	4 55	4 65
14 gauge	4 60	4 70
16 gauge	4 65	4 75

BLACK SHEETS—

18-20 gauge	5 25	5 35
22-24 gauge	5 30	5 40
26 gauge	5 35	5 45
28 gauge	5 50	5 60

A charge of 25c per 100 lbs. is made for less than case lots. An extra 10c. per 100 lbs. is also charged on sheets 26 in. wide.

RADIATOR AND BOILER PRICES FIRM

Toronto.

No prices have been changed on radiators and boilers. A firm note is being maintained in these lines. Jobbers report that good sales in above lines have been felt in the last two weeks.

RADIATORS AND BOILERS—

Revised radiator list prices are for 1, 2, 3, 4 and 5-column radiators per square foot.

38 in., \$1; 32 in., \$1.10; 30 in., \$1.15; 26 in., \$1.20; 23 in., \$1.26; 22 in., \$1.30; 20 in., \$1.36; 18 in., \$1.40; 16 in., \$1.50; 14 in., \$1.55; 13 in., \$1.60.

Discount on 2, 3, 4 and 5 column standard sizes, 44 per cent. for water and 45 per cent. for steam.

Discount on 1-column standard size, and 2, 3, and 4-column hospital sizes 36 per cent. for water and 37 per cent. for steam.

Discounts on 1 column hospital size water 22 per cent. Steam 23 per cent.

Wall radiators—5 ft., \$1.15; 6 ft., \$1.10; 7 ft., \$1.05; 9 ft., \$1.05; 12 ft., \$1.05. Discount 41 per cent.

BOILERS—

Water:

Round 52 per cent. off list. Square 8 per cent. off list.

Steam:

Round, 13 per cent. off list; Square, list plus 7 per cent.

RANGE BOILER PRICES MAINTAINED

Toronto.

No fluctuations have occurred in prices of range boilers. For current prices see list herewith:

RANGE BOILERS—	St'nd'rd	Ex. He'vy
5 gallon	8 77	....
10 to 15 gallon	9 10	....
18 gallon	9 75	....
25 gallon	10 70	....
30 gallon	11 35	13 13
35 gallon	13 30	15 38
40 gallon	14 80	17 06
52 gallon	24 70	28 50
66 gallon	39 50	45 56
82 gallon	48 10	55 50
100 gallon	66 95	77 25
120 gallon	76 05	87 75
144 gallon .....	....	122 50
168 gallon .....	....	140 25
192 gallon .....	....	157 50
EXTRAS—	Add	....
For horizontal tapping	1 15	....
1" Special for gas heater	1 00	....
Each extra 3" tapping	3 00	....
Each extra 2" tapping	1 75	....

CORRUGATED SHEETS

Toronto.

Prices remain the same as before on corrugated iron sheets.

CORRUGATED SHEETS—	Per 100 sq. ft.
No. 28 gauge	7 00
No. 26 gauge	7 50
No. 24 gauge	10 00
No. 22 gauge	12 50
No. 20 gauge	14 00
No. 18 gauge	19 00
Less 10 per cent.	....
Lighter than 24 gauge and wider than 27 ins.	....
75 cents per square extra.	....

PRICES ON CANADA PLATES ARE FIRM

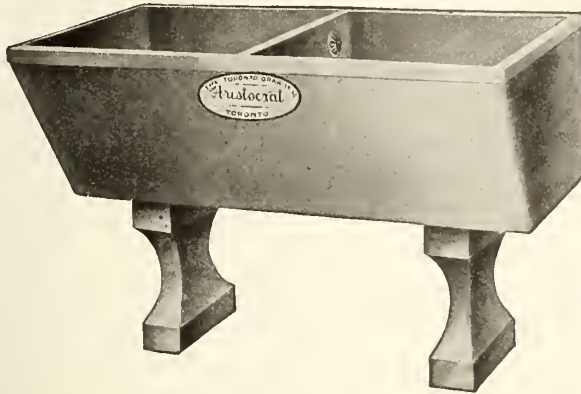
Toronto.

Fair trading has been recorded locally on Canada plates. The existing prices are given herewith:

CANADA PLATES—	Per box
Ordinary, 75s	5 65
Blued, 75s	5 95
Blued and oiled, 75s	6 05
Polished, 75s	6 85
Ordinary, 60s	5 50
Blued, 60s	5 80
Blued and oiled, 60s	5 90
Polished, 60s	6 70
Ordinary, 52s	5 40
Blued, 52s	5 70
Blued and oiled, 52s	5 80
Polished, 52s	6 60
Welsh polished, 60s	7 35
Welsh polished, 52s	7 10

The "Aristocrat" Laundry Tub

Made in One, Two and Three Divisions



Impervious to Moisture

Solid Soldered Joints

No Sharp Corners

Extra Heavy Zinc

Rust-Proof Rim

Perfect Drainage and Cannot Overflow

ONE OF THE "ARISTOCRAT" FAMILY

As a companion to our "ARISTOCRAT" LAUNDRY TUBS which are being installed wherever Homes are being built, we are now making

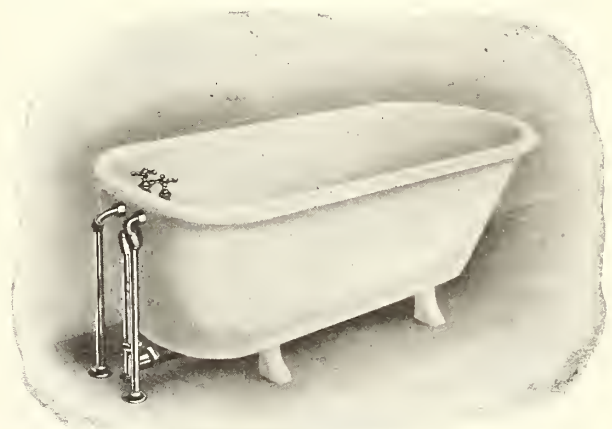
THE SE-MENT BATH-TUB

Natural Cement Finish

We have produced the "SE-MENT" BATH TUB at a popular price so that as many householders as possible could avail themselves of its advantages.

Simplicity of Design Neat Appearance
Impervious to Water

Mounted on Cast Iron Legs to match Tub
All the advantages of a high-priced outfit.



JUST THE THING for a SUMMER COTTAGE or for use in Rural Districts.

ORDER FROM YOUR JOBBER

THE CANADA METAL COMPANY

LIMITED

Toronto

Hamilton

Montreal

Winnipeg

Vancouver

NO CHANGE IN BOILER STAND PRICES

Toronto.

Boiler stands are being sold at same prices as last published.

BOILER STANDS—

Each—5 gal. \$1.50; 12 gal. \$1.50; 18 gal. \$1.50; 25 gal. \$1.50; 30 gal. \$1.50; 35 gal. \$1.75; 40 gal. \$1.90; 52 gal. \$2.10; 66 gal. \$2.25; 82 gal. \$2.50; 100 gal. \$3.80; 120 gal. \$4.00; 144 gal. \$4.00; 168 gal. \$4.00; 192 gal. \$4.00; Adjustable Stands 12 to 14 inch 60c. Stahl boiler stand. 70c.

CLOSET COMBINATIONS—

Each
Oak, Wood Tank, Oak W. S. Seat and Cover 24 00
Oak Vitro Tank, Oak W.S. Seat and Cover 24 00
Oak Pussyfoot Tank, Oak W.S. Seat and Cover 24 00
Oak Wood Tank Oak P.H., Seat and Cover 24 50
Oak Vitro Tank, Oak P.H. Seat and Cover 24 50
White Vitro Oak Woodstrip Seat and Cover 24 50
White, Pussyfoot Oak Woodstrip, Seat and Cover 25 50
White Vitro Tank, Mahog., P.H. Seat and Cover 26 50
White Pussyfoot, Mahog., P.H. Seat and Cover 26 50
White Vitro or Pussyfoot, oak, P.H. Seat and Cover 26 00
Mahog. Pussyfoot, Mahogany P.H., Seat and Cover 27 00
Vitreous China Tank, Oak P.H., Seat and Cover 30 75
Enam. Iron Tank, Oak P.H. Seat and Cover 28 75
Vitreous China Tank, Mahog., P.H. Seat and Cover 31 00
Enam. Iron Tank, Mahog., P.H., Seat and Cover 29 00

ADDITIONS OR REDUCTIONS ON ABOVE—

If supplied less bend or offset, deduct.. 0 50
If supplied with reverse trap bowl, add 1 50
If supplied with BOT Reverse Trap bowl Add. 2 25
If supplied with plain syphon jet bowl Add. 7 00
If supplied with N.P. stock cock on supply Pipe, Add 1 50
If supplied less brass and rubber floor flange and bolts, Deduct 0 60
If supplied less bend or offset, deduct. 0 50
If supplied less N. P. supply pipe deduct 0 70

CLOSET BOWLS—

Washdown bowl with spud 10 60
Reverse trap bowl, with spud. 12 10
Syphon jet bowl, with spud 17 00
"Richelleu" bowl 10 50

CLOSET TANKS—LOW DOWN—

Oak wood, Tank and inside fittings with bend and supply 11 20
Mahog. Wood Tank, and inside Fittings with bend and supply 15 40
Oak Vitro or Pussyfoot Tank and inside Fittings with bend and supply 11 20
White Vitro or Pussyfoot Tank and Inside Fittings with bend and supply 13 45
White Enam. Tank F-585 or P-9262, or White Vitreous China Belmeade Tank with fittings (as above) 18 00 18 90

CLOSET SEATS—

Oak Rich. Seat and Cover to wall 3 50
Oak Woodstrip Seat and Cover with bolts 3 50
Oak Woodstrip Seat less Cover with bolts 2 90
Oak Post Hinge Seat and Cover 3 85
Mahog. Fin. Post Hinge Seat and Cover 4 75

NO CHANGES IN MALLEABLE OR CAST FITTINGS

Toronto.

The discounts which were published in last issue of Sanitary Engineer still hold good. Dealers report good sales in this line.

PIPE FITTINGS—Cast Iron—

Elbows, tees, etc., standard sizes 10%
Plugs, solid, countersunk and std. 10%
Bushings 10%
Flanged unions 10%
Flanged fittings 20%

MALLEABLE FITTINGS—

Bushings 15%
Hex. nipples, H. & L. 25%
Steam cock wrenches 30%
Union ells and tees 50%
Boiler fittings (old style) 32 1/2%
Do., (new style) 27 1/2%
Lip unions, all sizes 30%
Ringhangers 30%
Wrought nipples to 4" close & short 45%
Do., 4 1/2" and up 5%
Malleable fittings, sold from price list, less 63%

COTTON WASTES

Toronto.

No new prices have been struck on cotton wastes.

COTTON WASTES—

XC.	015 1/2
XXX extra	0 20
X, grand	0 18 1/2
XLCR.	0 17
X, Empire	0 15 1/2
X, press	0 14
Colored, No. 1	0 14 1/2
No. 17	0 14 1/2
No. 1A	0 13 1/2
No. 1B	0 11 1/2
Fancy	0 15 1/2
Lion	0 14
Standard	0 12 1/2
Popular	0 10 1/2
Keen	0 08 1/2
X	0 17
Above lines subject to trade discount for	
Cream, polishing	0 24
White, XXX	0 21
XX	0 18

ASBESTOS PIPE COVERING

Toronto.

The same prices are in force on asbestos pipe coverings and on asbestos paper or felt.

ASBESTOS PRODUCTS—

Pipe Covering—
Air cell, 4 ply 50 per cent. off list.
Air cell, 3 ply 55 per cent. off list.
Air cell, 2 ply 57 1/2 per cent. off list.
Boiler Covering \$1.50 — \$2.00 per bag.
Asbestos paper or felt 8.25 \$9.00
Magnesia pipe covering less 40 per cent.
Magnesia pipe covering, small lots, less 35 per cent.

ENAMELLED FITTINGS ARE FIRM IN PRICE

Toronto.

A fair demand has been felt for enamelled fittings. No prices have been changed in this line.

ENAMELED FITTINGS—

Enameled Iron Baths, 3" roll rim, 4 ft., 4 ft. 6 in., 5 ft. 51 40
Do., 5 1/2 ft. 57 10
Lavatories—
17x19" Apron F139 or P4045 15 30
18x24" Apron F154 or P3845 or P3847 23 60
18x21" Apron F169 or P4205 17 60
18x21" Roll Rim, F197, F199 or P4655-6 15 40
17x19" Roll Rim, F241 or P4345 12 60
Sinks, Roll Rim, 16x24 in. 18 40
Do., 18 x 30 in. 23 00
Do., 20 x 30 in. 24 70
Sinks, Flat Rim— 3 only 2 only 1 only
16x24 \$7 60 \$7 70 \$7 80
18x30 8 50 8 60 8 70
20x30 9 70 9 80 9 90
List less 30 per cent.

CEMENT PRICES ARE NOT CHANGED

Toronto.

Portland cement has been selling in good quantities recently, building operations being largely responsible for this movement of goods. Prices have not changed on cement.

CEMENT—

Car lots, per barrel 3 45
Less car lots, per barrel, f.o.b. yard. 4 35
Per barrel, delivered 4 55
Single bags, 1.15 each, 4 bags to barrel.
Extra charge of \$1.50 per load on less than 24 bag lots.
Rebate of 20c. each for empty bags.

Winnipeg, Man.

WINNIPEG, June 13.—Few price changes are recorded on the local market on plumbing and steamfitting lines. Backward weather has had a depressing effect upon business as it has delayed the season, but with warmer weather an improvement is expected by the trade. Elbows, stove and tapering pipes are ruling steady. Range boilers, iron pipe, conductors and eavestroughs maintain a firm tone. Higher quotations are in effect on soil pipe and soil pipe fittings. No change is recorded on compression goods.

STOVE PIPE AND ELBOWS RULING STEADY

Winnipeg.

A good demand is recorded for stove pipes, tapering pipes and elbows and the following quotations are in effect:

STOVE PIPE—

Per 100 lengths	
Size 6 in. Standard, plain, nestable	16 63
Size 7 in. Standard, plain, nestable	17 96
Size 6 in. Ready to Rivet, nestable	15 09
Size 7 in. Ready to Rivet, nestable	16 42
Size 6 in. Riveted	15 60
Size 7 in. Riveted	16 90

Per doz.	
Size 5x6 in. Tapering Pipe	2 52
Size 5x7 in. Tapering Pipe	2 82
Size 6x7 in. Tapering Pipe	2 82
Size 7x6 in. Tapering Pipe	2 82
Size 6 in. T Pipes	4 27
Size 7 in. T Pipes	4 66
Size 6 in. Heavy elbows	2 71
Size 7 in. Heavy Elbows	3 09
Size 6 in. Light elbows	1 96
Size 7 in. Light Elbows	2 26

NO CHANGE IN QUOTATIONS ON COMPRESSION GOODS

Winnipeg.

Trading is reported fairly steady on the local market for compression goods. Quotations remain steady with no indication of any revision in quotations on these lines.

CLOSET COMBINATIONS IN QUIET DEMAND

Winnipeg

There is no price changes noted on closet combinations. The demand for these lines is quiet at the present time but an improvement is expected as the season advances.

SOIL PIPE AND FITTINGS MOVE UPWARD

Winnipeg.

Higher prices are in effect on cast iron soil and soil pipe fittings. Cast iron soil pipe of two and three inch is quoted at list price less five per cent. Four inch at twelve and a half per cent., five and six inch at less five per cent. and eight inch plus fifteen per cent. Two and three inch cast iron soil pipe fittings are quoted at list price less thirty per cent., four, five and six inch are quoted at the same discount, while eight inch is list price plus fifteen per cent.

FIRM TONE PREVAILS ON IRON PIPE

Winnipeg.

A firm tone prevails on wrought iron pipe and no price changes are recorded since the recent advance.



Your Opportunity

A few years ago the automobile was only an idea in a man's brain.

Then, one day the world saw and accepted its wonderful possibilities and a great new industry that has revolutionized transportation was born.

The idea of automatic home hot water service is just now being accepted.

Its struggle for recognition is over—the foundation for its success has been completed.

Dozens—hundreds—perhaps thousands of homes in your district are ready and waiting for the wonderful service made possible by RUUD Automatic Gas Water Heaters.

The same opportunity that was extended the automobile dealer a few years ago is now knocking at the door of every merchant plumber.

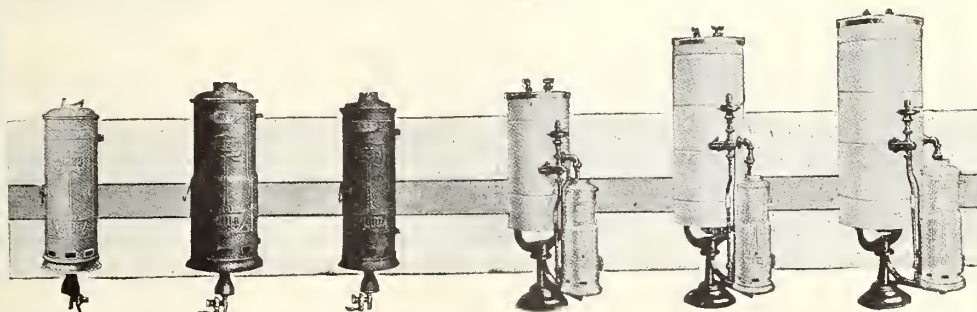
RUUD offers you the only complete All-Quality Line of Automatic Gas Water Heaters and a program of help and co-operation that is on a par with the quality of the product.

**Resolve now to spread the gospel of RUUD
Automatic Hot Water Service — it pays.
Write for particulars.**

Ruud Manufacturing Company

474 Bathurst St.

Toronto, Ontario



CONDUCTORS AND EAVESTROUGH CONTINUE FIRM

Winnipeg.

Seasonable activity in eavestrough and conductors is reported with renewal of building activities. The market is firm and prices are well maintained.

RANGE BOILERS ARE FIRM AND UNCHANGED

Winnipeg.

There is no change in the price of galvanized range boilers on the local market. Since the recent advance prices are well maintained.

SELLING THE FARMER CITY CONVENIENCES

(Continued from page 30)

cost is unusually high. At the same time I do not for one moment wish to show that a farmer ought not to own a car, I honestly think he should. But, I do believe, however, that of the two investments, city conveniences or auto, the former would by far be the most profitable. As a matter of fact, I rather think that as a farmer and his folk are on their feet most of the day, the rest, and bracing wind experienced while taking a car ride would be refreshing and very beneficial.

Yet at the same time, a thousand dollars invested in a plumbing and heating system is a greater and more profitable asset than an automobile could possibly be.

Dollar and Cent Investment

When a farmer invests a thousand dollars in city conveniences in his home, he is only losing the interest about 3 per cent., he would get from a bank, or \$30.00 a year, and I do not think that if farmers were shown how much more necessary it is to have plumbing and heating systems installed in their houses, than either owning a car or having their money invested in a bank at 3 per cent., they would all have bathroom and furnace in preference.

When a farmer deposits his money in the bank, he only gets 3 per cent., and if he wants to borrow money from a bank he must pay 7 or 8 per cent. But if he were to invest his money in his house in the shape of city comforts and wanted to borrow money from the bank, his house would be better security so equipped than having a car. He can in fact, make his home his bank, where he lives one-half of his life, he and his family could have comfort on tap 24 hours a day. His wife would be proud of her home. His family would be brought up to love their home, all at a cost of about 3 per cent. on, say—a thousand dollars. As a matter of fact, there's more real happiness in a farmer's home where the wife is proud of her kitchen, her bathroom and her laundry, than there is in a city home, because the farmer has free fresh air, no noisy, dusty streets, fresh milk from

the cows and eggs from the chicks, all plus city conveniences.

How the Farmer Can Pay for City Conveniences

It is all very well to suggest that a farmer spend money on modern bathroom and kitchen, and so on. But what about the payments? When a farmer buys an auto, he pays about one third of the total purchase price and then some Guarantee Company finances the farmer's notes spread over a period of from 10 months to one year.

The plumbing supply houses, and those who install city conveniences, are not in a position to handle business in that way—first, because after a certain period the plumbing fixtures are not recoverable if payments are not made, and secondly, because wages for making installations form a large part of the cost, cash has to be paid. However, the writer has learned of a better way.

Ontario Govt. Will Provide Cash

The writer called upon members of the Ontario Government recently, and took this question up regarding financing the farmer so as to enable him to have plumbing installed in his home, and found that provided certain conditions are carried out, there is every possibility of a farmer receiving financial assistance from the Agricultural Development

Board, Number 5, Queen's Park, Toronto. This is a provincial Department operating under the Agricultural Development Act, 1921. Full information can be procured by dropping a line to above address.

Greater Efficiency on a Farm

There's more efficiency in that farmer's household where every convenience is at hand than in the "tin dish kitchen and the stove-heated house."

A farmer living in a fully-equipped house will be healthier, wealthier and wiser. He will be able to do more work, be a clearer thinker, and, in general, be a better citizen.

So it's up to you, Mr. Manufacturer—Jobber—or Sanitary Heating Contractor, to become enthused in this big work by doing all in your power to fit up every farm and rural home with sanitary plumbing and heating equipment. You will profit by so doing, Canada will profit by having the rural depopulation problem solved.

For, after all, the prosperity of the farmer is the true success upon which nations are built.

Use some of the arguments contained in this article when you call on a farmer, and see that his wife is present when you are talking to him.

New Goods of Interest to the Plumbing Trade

New Adjustable Wrench

The Keystone Manufacturing Co. of Buffalo, N. Y., have placed on the market a new adjustable "Keyco" pipe wrench. This tool is said to be a No Slip, Sure Grip pipe wrench, which can be used in all places where the ordinary line of pipe wrenches can be used. The accompanying cut gives a clear idea of the general appearance of the new wrench.

This tool can be operated with one hand and does not have to be "held on" the pipe or stud, and the more tension put on, the tighter becomes the grip of



PATENT APPLIED FOR

the jaws. It is made in two sizes No. 93, length 7 inches, capacity 0 to 1½ in., suitable for ½ in. to ½ in. pipe, and No. 94, length 9 inches, capacity 0 to 2 in., suitable for ½ in. to 1 in. pipe. This tool is designed for use in the car, home, garage, factory or in general, for all kinds of gas and water pipe fittings.

It is claimed that this wrench is very simple in construction, light, well balanced, and strong, with all the major parts made of special alloy steel, oil-hardened, and that it is fully guaranteed by the manufacturers.

Another feature is that the handle part of the "L" shaped half of the wrench is tapered down and ends with a screwdriver point.

New Extension Bit

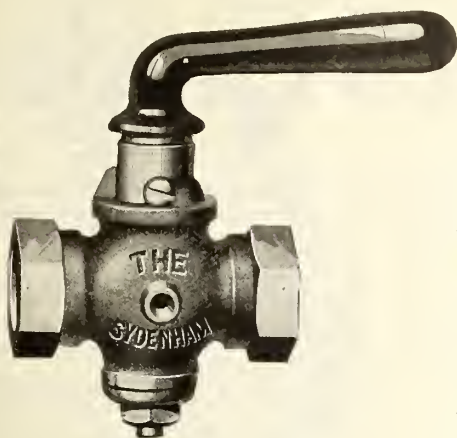
The Millers Falls Company, makers of tools, of Millers Falls, Massachusetts, have placed on the market a new extension bit. This article is listed in their catalog as number 35 Improved Bit Extension.

It is made in the following lengths: 12 in., 15 in., 18 in., 21 in., 24 in., and 30 in. and is packed one in a pasteboard box.

We are informed that this tool will follow a bit 11/16 in. or larger, but is not recommended for bits larger than 12-16 in. It is said that this bit having



but two jaws, it allows extra wide surface to withstand twisting strain and that the print in jaws conforms to shape of auger bit shank, which allows of perfect alignment, and no wobbling. The jaws are said to be removable and can quickly be replaced and the adjusting nut is heavily knurled which gives positive grip. It is threaded for rapid adjustment, with the upper portion of the adjusting nut of hexagon stock to permit of tightening with a wrench.



No. 4032

KEY GOODS

Solid substantial Ground Key Stop Cocks — *Deep Barrels* with ample bearing surface — Heavy Hex. *Keys finely ground in*—Each piece tested to 200 pounds.

When a job is put up with these Stops *it will stay up*—no tearing down again because of bad threads or leaky Keys.

THE

WALLACEBURG BRASS & IRON MFG. CO.

WALLACEBURG, ONTARIO

LIMITED

TORONTO OFFICE:

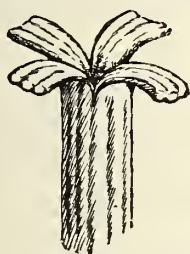
10 Wellington St. E., Phone Main 2355
Mr. L. N. Vanstone

MONTREAL OFFICE:

10 Victoria St., Phone Uptown 945
Mr. G. M. Price

WINNIPEG:

80 Lombard St., Phone A. 9135
Moncrieff & Endress, Ltd.



How To Do It!

When putting up fixtures in lath and plaster, or hollow tile, follow these directions and you will have no difficulty in making attachments.

Take the Rawlplug tool and carefully make a hole in the plaster, select a long Rawlplug and split the end with your knife about $\frac{1}{2}$ inch, insert it in the hole, bending back your split portions as shown in the illustration; turn the screw home and then cut away the split portions. **This method positively prevents the plug from falling into the hollow behind!**

The Rawlplug way is the **BETTER WAY** to securely attach fixtures to any material—For satisfaction, economy and permanent work always use them. A postcard will bring you samples and price list.

INVENTIONS LIMITED

The Rawlplug Co. of Canada

Southam Building, Bleury Street, Montreal

SALES AGENTS:

Dominion Engineering Agency, Ltd., 24 Adelaide St., E., Toronto, Ont.

Sterling Specialties, 213 Somerset Building, Winnipeg, Man.

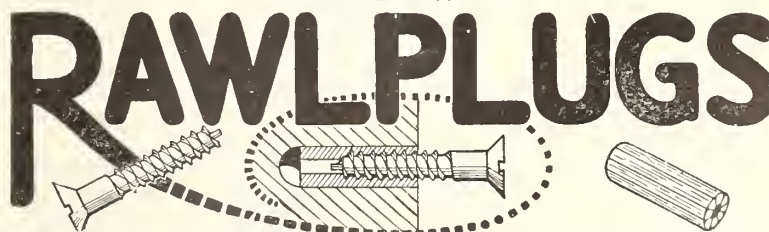
H. G. Evans, 58 Water St., St. John, N.B.

Blackadar & Stevens, 139 Roy Building, Halifax, N. S.

Frank Raw & Co., 198 Hastings St. West, Vancouver, B.C.

Agents Wanted in Ottawa

FIX IT WITH



**AIR COMPRESSORS**

Smart Turner Machine Co., Ltd., Hamilton, Ont.

AIR LINE SYSTEMS

C. A. Dunham Co., Ltd., Toronto.
United Brassfounders & Engineers, Ltd., Manchester, Eng.

ALUMINUM CASTINGS

Fittings, Limited, Oshawa.
Canada Metal Co., Ltd., Toronto.

AIR VALVES

Beaton & Caldwell Mfg. Co., New Britain, Conn.
W. H. Cunningham & Hill, Ltd., Toronto.
C. A. Dunham Co., Ltd., Toronto.
Empire Mfg. Co., Ltd., London and Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
United Brassfounders & Engineers, Ltd., Manchester, Eng.
Wallaceburg Brass & Iron Mfg. Co., Ltd., Wallaceburg, Ont.
Wolverine Ltd., Toronto, Ont.

BATHS, STEEL

Steel Trough & Machine Co., Ltd., Tweed, Ont.

ATMOSPHERIC STEAM HEATING

J. E. Farrell, 210 Galley Ave., Toronto, Ont.

BATHROOM FITTINGS

Canada Metal Co., Ltd., Toronto.
Gendron Mfg. Co., Toronto.

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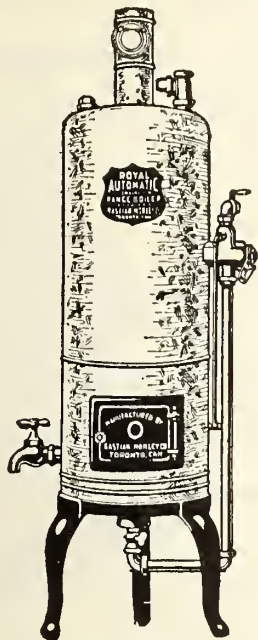
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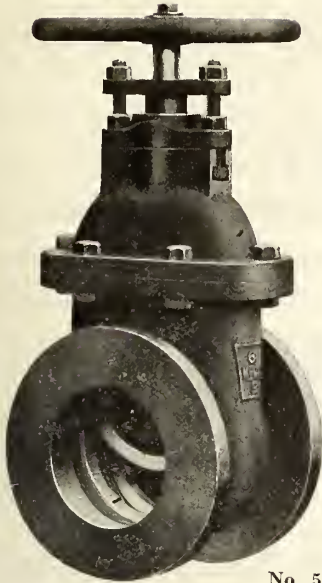
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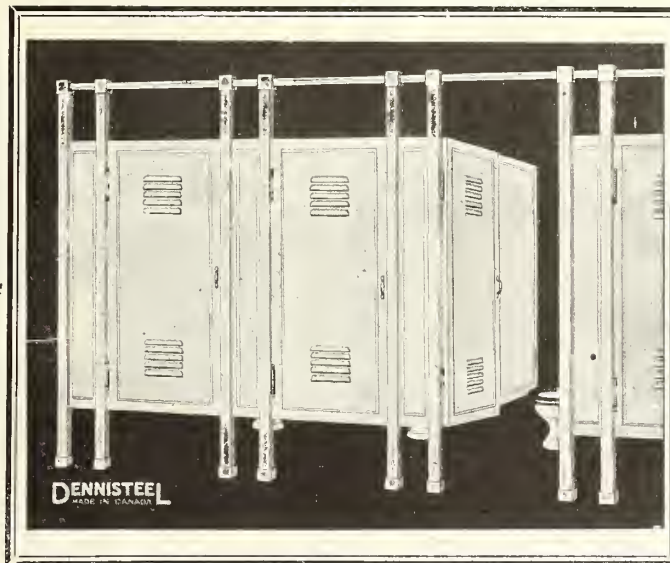
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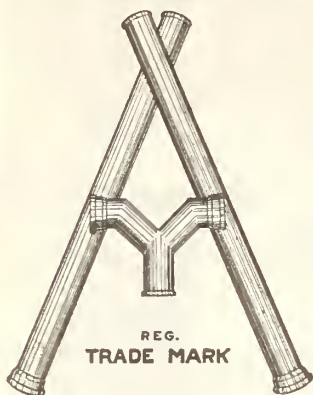
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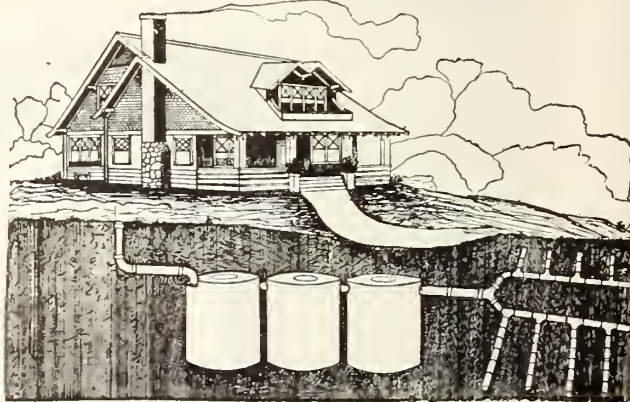
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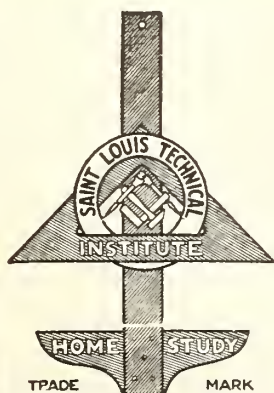
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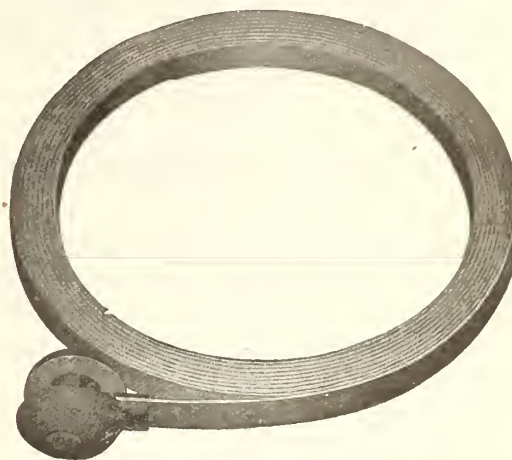
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WOLVERINE

SEWER ROD

WITH ROTARY HEAD

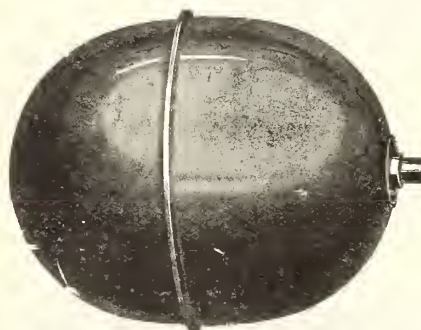


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Quite
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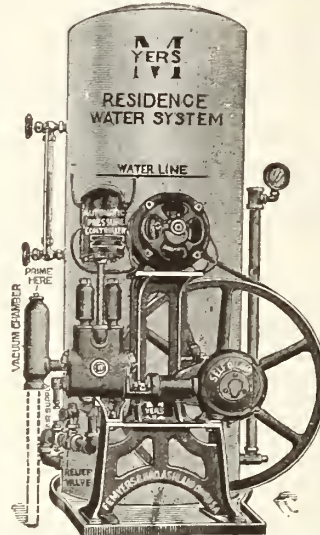
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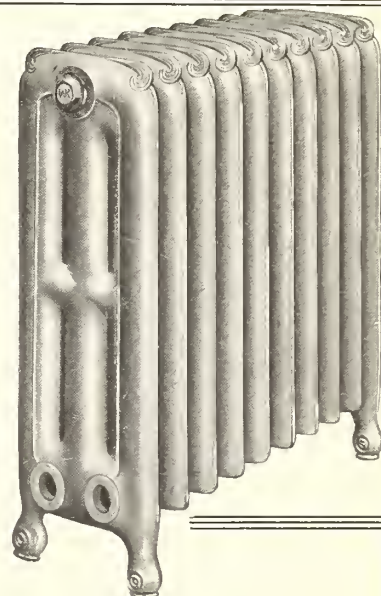
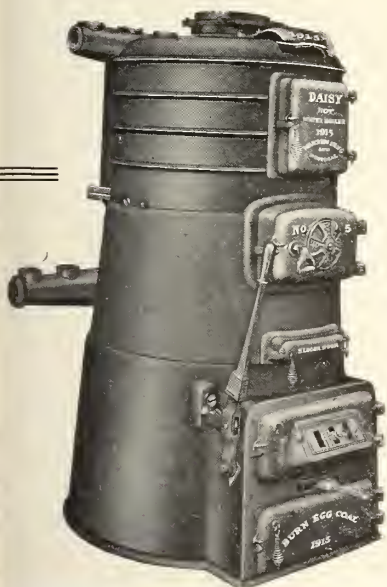
DART UNION CO., LIMITED
TORONTO, ONTARIO

It Pays to Concentrate on Daisy Boilers

No sales appeal equals, nor even approaches the effectiveness of a strong testimonial from an actual user of the article being offered for sale. A recommendation from a man who has had such an article for a long time—who knows just what it will do and has done over a period of strenuous service.

Over 60,000 Daisy Hot Water Boilers are now giving perfect satisfaction in homes in every province of the Dominion.

It pays to concentrate on "Daisy" Boilers and "Viking" Radiators.



Warden King Limited
MONTREAL

Branch Office: 136 Simcoe Street, TORONTO, Ont.

An Explanation



Some Whys and Wherefores

If we seem sometimes, in these advertisements, to stress the mechanical perfection of Vitros more than their outward beauty it is because we can by pictures give you a faint idea of their splendid lines and finish, while to show by a picture that the mechanical parts work smoothly is impossible.

All the care that can be expended on a tank is given to Vitros in their manufacture. They are our hobby as well as our work; our pride as well as our living.

When a plumber installs a Vitro all he has to do is to connect it to the bowl and to the water line. All the testing and worrying has been done by us at the factory before it comes to his hands.

This is one of the reasons why Vitro leads in sales every other tank on the market.

Your jobber sells them

VITRO
NO TROUBLE
TANK

Also Exclusive Manufacturers of Perfecto
Brass Sockets and Teck Flush Valves

Galt Brass Company Limited
Galt :: Ontario

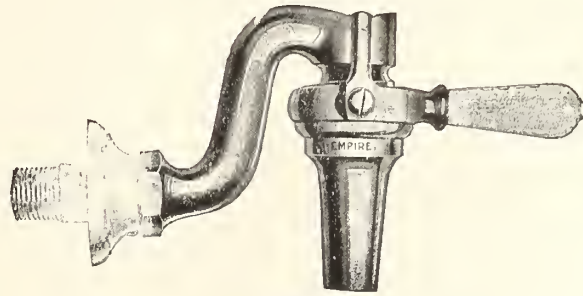
Sanitary Engineer

Plumber and Steamfitter of Canada

Vol. XVII.

PUBLICATION OFFICE, TORONTO, JULY 1, 1923

No. 13



A237

Install Kitcheners Faucets

A quick-opening packless faucet for kitchen and laundry sinks.

The desirable feature of this faucet is the lack of splashing and its ease of operation. A half turn of the lever gives a solid steady stream.

Being packless, the Kitcheners Faucet gives no trouble with leaking around the stem, even after years of use.

The Kitcheners Packless Faucet is made of the best red metal, and can be supplied with a white porcelain or nickel plated brass handle, making a handsome fixture to be used in any installation.

It is worthy of the name Empire and has won its place among Empire plumbing fixtures. It is backed by the Empire guarantee and is recommended for all installations where a quick opening faucet giving a splashless stream is desired.

Empire products are handled by the leading jobbers from coast to coast. If your jobber cannot supply you write us.

Empire Brass Manufacturing Co., Ltd.

LONDON AND TORONTO, CANADA

THERE ARE MANY THOUSANDS
of
“PUSSYFOOTS”

in use throughout the Dominion. Our experience is that wherever they are installed they give **100 Per Cent.** satisfaction.

THERE COULD BE NO BETTER RECOMMENDATION

The Mechanical Portion of the Outfit is constructed in the simplest possible way—and only picked material of the highest quality is used.

In operation
it is
absolutely Silent.



Every Tank is thoroughly tested before leaving our Plant and **OUR GUARANTEE** stands

at the back
of every one sold.

Finished in
Oak,
Mahogany or
White

It costs no more
than
any other Tank.

Stocked by Every Jobber.
Specify “PUSSYFOOT” when ordering

THE CANADA METAL COMPANY
LIMITED

Montreal

Hamilton

TORONTO

Winnipeg

Vancouver

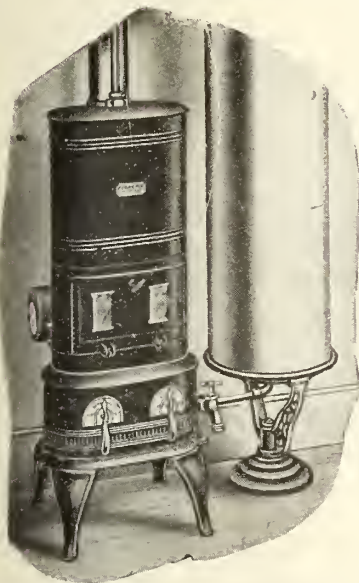
McClary's

This name on a heater makes selling easier



McClary's advertising goes, many times a year, into the homes of most people in your town.

McClary's is a household word across this wide Dominion. The name, McClary's, is synonymous with satisfaction wherever our heating equipment is installed.



McClary's heaters have their own recommendation stamped upon them — their name plate.

The immeasurable good-will of thousands of satisfied owners, eases the selling resistance that dealers meet when handling unknown heaters. The name on the heater makes selling easier.

Gas, Electric and Kerosene Water Heaters. Canadian made by McClary's London, Ont.

McClary's

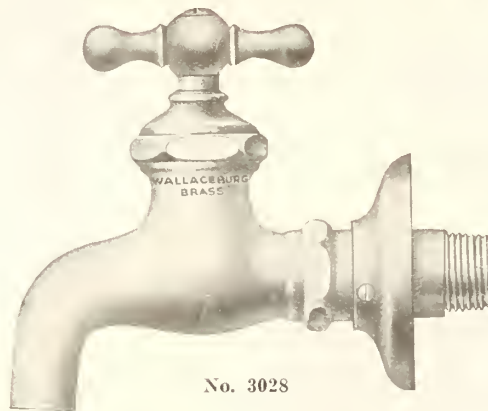
London
Winnipeg
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Toronto
Vancouver
Calgary
Edmonton

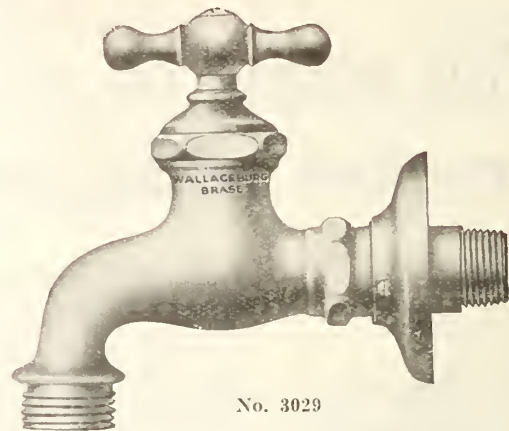
Montreal
St. John, N.B.
Saskatoon

Standard Sink Faucets

FOR THE DAILY GRIND



No. 3028



No. 3029

By **STANDARD** we mean a full weight Bibb, **sturdily designed, accurately machined** from prime brass castings, fine and tough and enduring.

We mean a Bibb with **precise threads** that can be readily made up on a job, **tight and snug and sightly**.

We mean a Bibb that has interior body thread and stem thread full and deep and **in close contact**, yet with handles that work freely and **can be spun to a firm seat**.

We mean a Bibb having the **best obtainable** Composition Cap Nut packing and Seat Washer—a Bibb with **handles corrugated on stems** and surface counter sunk to let in handle screw—a Bibb of finely polished brass or heavy nickel plate surface—the whole a finished product.

Install these **real Bibbs**—they will satisfy the plumber and get and keep trade.

Ask Your Jobber

THE

WALLACEBURG BRASS & IRON MFG. CO.

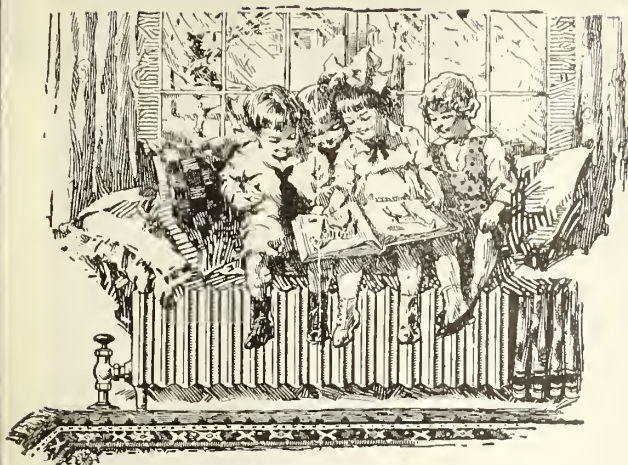
LIMITED

WALLACEBURG, ONT.

TORONTO OFFICE:
Mr. L. N. Vanstone, 10 Wellington St. E.
Telephone: Main 2355

MONTREAL OFFICE:
G. M. Price, 10 Victoria St.
Telephone: Uptown 945

WINNIPEG:
Moncrieff & Endress, Ltd., 80 Lombard St.
Telephone: A 9135



Warm friends will be your strongest advertisers.

Remember Pease

when placing that
next order for
Heating Goods

As previously announced we are now in a position to supply you with

Economy	Boilers
Arco	Boilers
Mogul	Boilers
Economy	Radiators
Safford	Radiators

and will welcome your orders for any of the above. Orders booked with Dominion Radiator Company, Limited, at discounts previous to those in effect to-day will be accepted at the original booking.

Our friends in the warm air heating business are asked to keep in mind the well-known

Economy Furnaces and Brampton Furnaces

If our latest discount sheet is not on file send for a copy to-day.

PEASE FOUNDRY COMPANY
— LIMITED —
TORONTO

PEASE WESTERN FOUNDRY
— LIMITED —
WINNIPEG



Do not forget our Engineering Department. It is maintained for your service. Use it.

*Crane Beauty in the Open—
Crane Efficiency in All
Hidden Equipment*



When you choose Crane equipment for your home, you have the comfortable assurance that the smallest faucet, valve or hidden fitting in the water, heating or sanitation system matches in quality and efficiency the visible units whose beauty and convenience make such striking appeal.

For the design and production of both hidden and visible equipment, Crane engineers and artisans have a background of experience acquired in supplying similar necessities for thousands of fine residences, apartments, hotels, clubs, office buildings, hospitals, schools and other public institutions. A lifetime of satisfying service is not too much to expect from Crane balanced installations.



CRANE

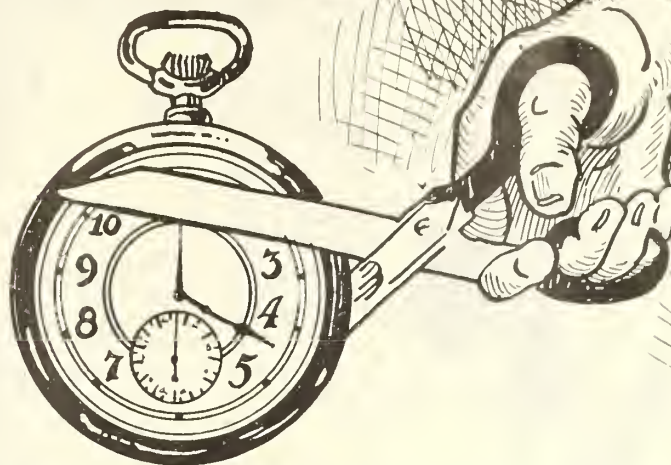
CRANE LIMITED, GENERAL OFFICES: 386 BEAVER HALL SQUARE, MONTREAL
CRANE-BENNETT, LTD., HEAD OFFICE: 45-51 LEMAN STREET, LONDON, ENG.

*Branches and Sales Offices in 21 Cities in Canada and British Isles
Works: Montreal, Canada, and Ipswich, England*

Cutting the Hours

On a job these days of high labor cost is what makes the difference between profit on a job, or breaking even or worse.

The Williams will cut nine-tenths off the hours it has taken you to cut your pipe by hand.

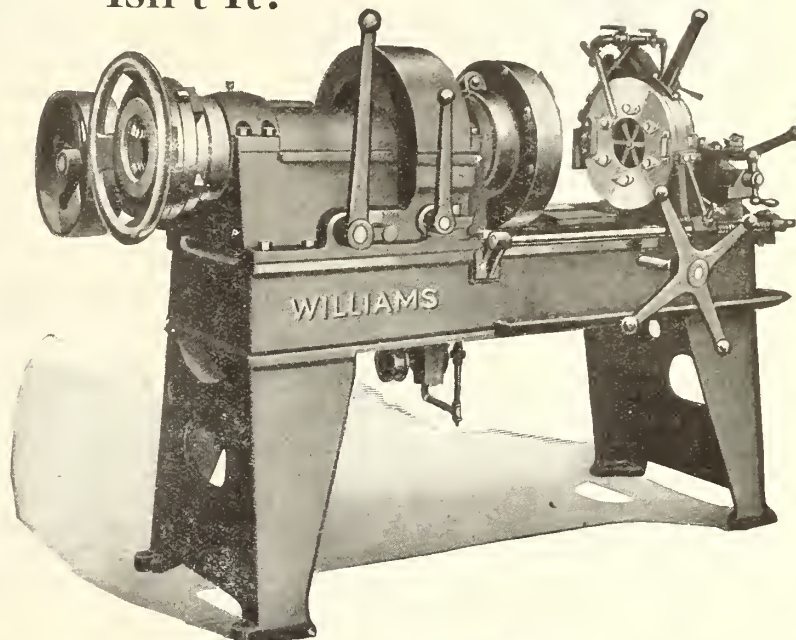


**That's Cutting the Hours Some,
Isn't It?**

Not only will the Williams cut, thread and ream your pipe in one-tenth the time, but it makes cleaner cuts and more perfect threads.

Williams have got a time payment plan by which the Williams earns itself.

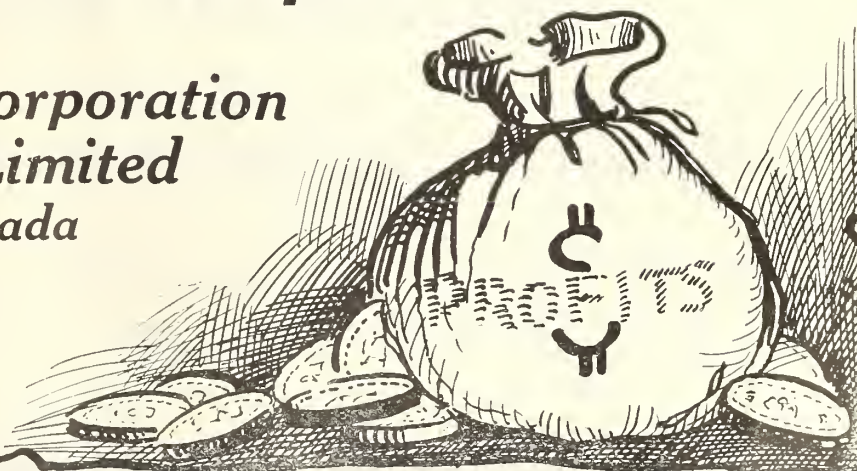
Our booklet, "Smashing Costs and Boosting Profits," tells you all about "Cutting the Hours" on pipe threading and cutting costs. Write for it today.



Williams Power Pipe Machines

**Williams Tool Corporation
of Canada, Limited
Brantford, Canada**

**American Plant:
ERIE, PA.**





Stop Guessing at Prices

The very foundation of your business is based upon you receiving a proper price for your goods and services. Procuring a large volume of business—getting jobs away from your competitor at a cheaper price—keeping a staff of men busy mean nothing unless every day's activities produce a **NET PROFIT**.

Prices are Changing

Hardly a day passes without a number of articles change in price and it is impossible for you to keep an up-to-date price list. If your prices are too high you lose business, and if they are too low you run the risk of losing money. There is a happy medium and you should have at your finger tips at all times the correct retail selling prices on over 3,000 items.

Use Henderson's Pricing System

The Henderson Business Service Limited make a specialty of watching the markets and keeping Sanitary Engineers informed from day to day as to what prices they should charge.

This service will absolutely guarantee you a reasonable profit on every article leaving your establishment. It will save many hours of your valuable time and help at the same time to gain the confidence of your customers. Hundreds of dealers throughout the country have been using this service for years and would feel lost without it. All this is possible for about 10 cents per day.

INVESTIGATE NOW

**Henderson Business Service
LIMITED**

Box 123

-

Brantford

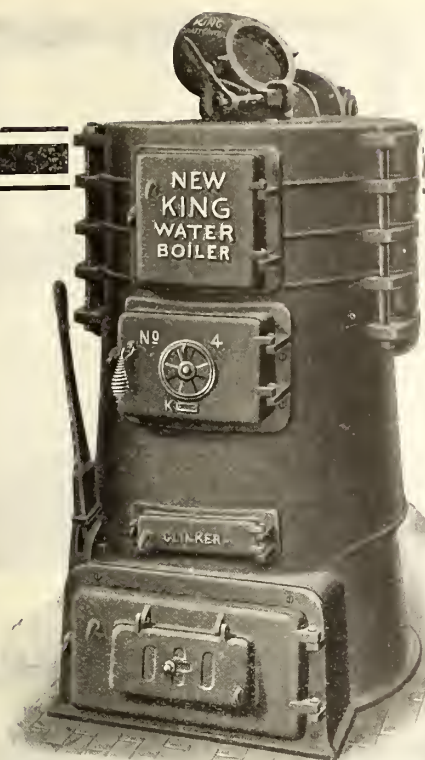
The Henderson
Business Service,
Limited.

Box 123, Brantford, Ont.

Give me full particulars about
your service.

Name

Address



Positive Unobstructed Upward Circulation Guaranteed with NEW KING

Hot Water Boilers

This boiler embodies the newest and best design known to heating engineers.

Note the following: Positive unobstructed upward circulation; two-way nipple construction guarantees non-stagnation of water in every section; grates operated by the improved King System; every boiler furnished with smoke control. Smooth, clean finish, unexcelled workmanship, satisfaction guaranteed.

IMPERIAL Radiators are specified by architects, where pleasing design, as well as efficiency, is specially required.

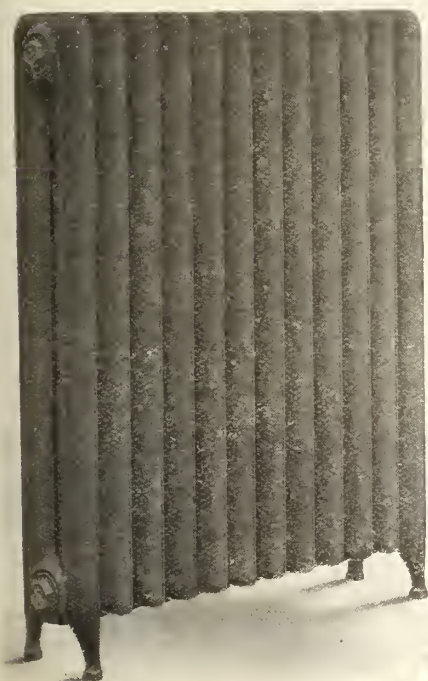
Write for our new catalogue, now on the press.

IMPERIAL RADIATOR COMPANY, LIMITED

228 St. Helens Ave.

- Toronto, Ontario

Works at St. Catharines





Let us Link Up "DAYTON" Advertising With Your Name

Here is a real Sales Plan. It costs you nothing to use it. It will bring profitable business to you—not only the sale of "DAYTON" Water Systems but bathroom fixtures, plumbing and accessories which you can sell only in homes having running water.

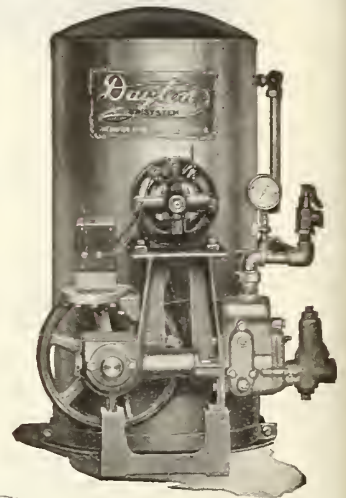
This Direct Advertising Campaign carries YOUR name and yours Only to prospective buyers. There are no strings to this offer. To sell TO you, we must first sell FOR you. We want plumbers to install "DAYTON" Water Systems and we have prepared a plan that actually sells—taking the burden off the dealer.

We have the kind of water system you want to sell your customers and the sales service; you have the prospects; let's co-operate. The result will be profitable to you. Send in the coupon to show you are interested before you forget it. We will send full details by return mail.

T. G. GRIFFITH & COMPANY
Manufacturers and Sanitary Engineers
165 KING ST. E., TORONTO, ONT.
Distributors in Ontario for

THE DAYTON PUMP & MANUFACTURING CO.
DAYTON, OHIO, U.S.A.

The "DAYTON" line includes models and sizes for every condition of service for Shallow and Deep Wells.



It's Not a "DAYTON"
Without this Trademark.

COUPON
Send me the "DAYTON" Water System Catalogue and details of the "DAYTON" Selling Plan.
Name
Street
Town
Province

Dayton Pumps

Make the water do the running

A Lavatory in Every Spare Bed Room

If a customer cannot see his way clear to having every bedroom opening on a bathroom you can at least sell him the idea of having a lavatory in every bed room—preferably a “Standard” pedestal lavatory.

Such propaganda gives your customers greater satisfaction and comfort and creates more profitable business for you. Provided, of course, you install “Standard” Plumbing Fixtures.

*Advertising!
The tonic that
builds up
business*

There is no tonic that will build up Business so substantially as Advertising! Watch for our effective campaign for “Standard” Plumbing Fixtures now running in Canadian newspapers and magazines.

Standard Sanitary Mfg. Co.

General Office and Factory; Royce and Lansdowne Aves., Toronto, Ont.

Toronto Store:
55-59 Richmond St. East

Winnipeg Showrooms:
76 Lombard St.

Hamilton Store:
20-28 Jackson St. W.

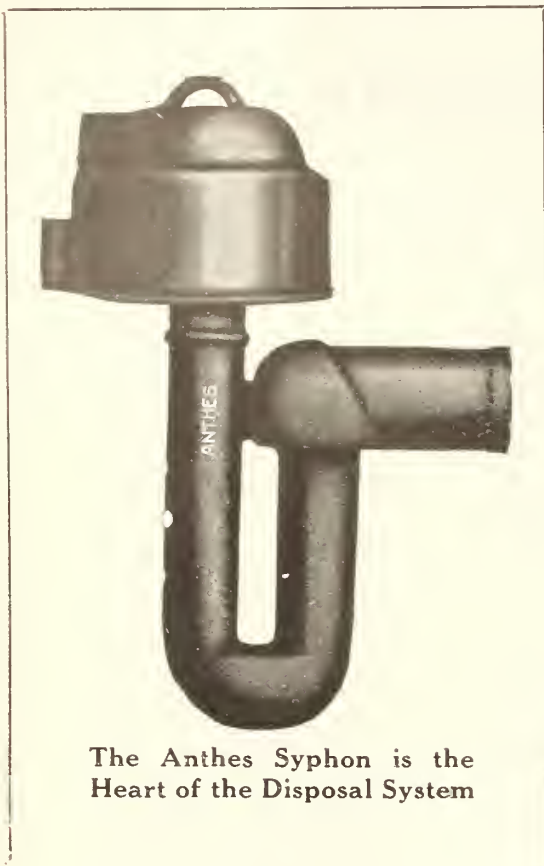
Montreal:
705 McGill Bldg.

Calgary:
325 Eighth Ave. W.

Vancouver:
860 Cambie St.

“Made in Canada”

Your Most Profitable Job



The Anthes Syphon is the Heart of the Disposal System

The installation of a sewage disposal system in a farm house is not only profitable in itself, but it, inevitably, marks the beginning of much worth while future business.

The sale of bath tubs, lavatories, closets, sinks—and the job of installing them and connecting them up—invariably follows.

A Water supply system is necessary to the proper functioning of this equipment and here you make another sale.

Our persistent propaganda in the rural field has opened to you wide sales opportunities. Go out after this worth while business. The sale of a disposal system will prove to be the most profitable of jobs.

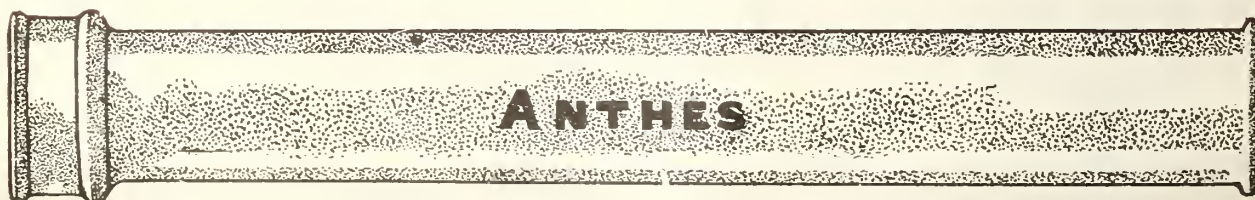
Anthes Foundry

Limited

Toronto and Winnipeg

Manufacturers of

Cast Iron Soil Pipe and Fittings



SANITARY ENGINEER

PLUMBER AND STEAMFITTER OF CANADA

ESTABLISHED 1907

PUBLISHED TWICE MONTHLY

Vol. XVII. PUBLICATION OFFICE: TORONTO, JULY 5, 1923

No. 12

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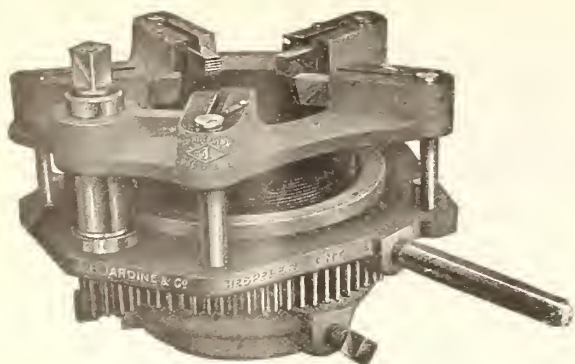
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"Toledo" Geared Adjustable Threading Tool,
No. 2½. Capacity 2½ to 6 in. inclusive.
Weight, 120 lbs.

Made in Canada



One Man Does the Work of Two

Mail this Coupon for a catalogue

NAME

ADDRESS

Sanitary Engineer.

Did You Ever Estimate

How much money imperfect threads cost
you?

Jardine & Toledo Pipe Threading Tools CUT PERFECT THREADS

Any size 1/8" to 12" at one cut.

Ask the man who uses them

Leading supply houses will be glad to give
you prices.

A. B. Jardine & Co. Ltd.
HESPELER, ONT.

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W. H. CUNNINGHAM & HILL,
269 Richmond St. West,
Toronto, Ont.

Winnipeg and West:
STANLEY BROCK, LTD.,
Winnipeg, Man.
Calgary, Alta., Vancouver,
British Columbia.

Brockville and East:
J. R. DEVEREAUX & CO.,
New Birks Bldg., Montreal, Que.



The Installation of Griffith's Sanitary Systems Is Your Greatest Contribution to Rural Development

The Canadian plumber has it in his hands to contribute more to the health and well-being of people in the rural districts than any class of citizen.

Every time he persuades a farmer to install a modern GRIFFITH disposal system to take the place of a smelly, fly-ridden outhouse he adds considerably to the general well-being of the country.

Every time he installs a Dayton water system to supersede the back-breaking pump he makes for better health, better citizenship and greater comfort.

AND—best of all—this making of better homes and healthier citizens is profitable business; it puts money in the bank—for you.

Go after this business.

T. G. GRIFFITH & COMPANY, *Manufacturers and Sanitary Engineers*
165 King St. East
Toronto, Ont.

Eastern Ontario Representatives: Shaver Bros., Booth Bldg., Ottawa, Ont.

Maritime Representatives: Eagar Coombs & Co., Halifax, N.S.

Established
1907

Circulates
Throughout
Canada

Sanitary Engineer

Plumber and Steamfitter of Canada

Published
First
and
Fifteenth
of Month

Vol. XVII

TORONTO, JULY 1, 1923

No. 13

Five Trucks Are Kept Busy on Profitable Jobbing Work

Well Fitted Showroom a Valuable Supplement to Other Sales Effort—Thousand Letters to Prospects Brought Direct Results—Jobbing Trucks Pick Up New and Renewal Plumbing and Heating Business

THAT a showroom can be made a very useful part of the selling effort of a sanitary and heating business even though the business consists very largely of jobbing work, is the opinion of Clarence Paddon of Paddon Co., Ltd., sanitary and heating engineers, of Windsor, Ont., as expressed to *Sanitary Engineer*. This company has occupied the splendid showroom as illustrated in this article for about one year, just long enough to prove that the facilities it offers for showing the various equipment as it will look installed, and for allowing prospects to make comparisons between various equipment, is extremely valuable. During that year the firm has had tangible evidence on numerous occasions of the value of such a showroom.

As will be noted by an examination of the room as illustrated, it is on a floor on a level with the sidewalk. It is shallow but extends across the width of the premises. On the left is shown a modern showcase containing a sparkling exhibit of various bathroom accessories. Other specialty lines, parts, etc., are to be seen displayed on the top of the showcase and on the shelving at the rear. Cross sections of water closets and other equipment showing the interior working allow the salesmen to demonstrate more clearly to customers the value of certain equipment and the advantage of buying standard, highclass wares. In the centre of this display room is a small stairway leading to the raised floor level on which the office and other rooms are located.

Can Make Comparison

In the showroom to the right of the stairway is to be found road array of plumbing and heating equipment. Pedestal basins, wall basins, kitchen sinks, drain boards, toilets, gas and electric water heaters, closet seats, etc., are arranged in attractive form. Prices are prominently shown on all equipment, and the merchandising element introduced by this means is said to be well worth while. Electric washing machines and wringers are shown, as much for their influence on the sale of water heating equipment as anything.

For purposes of comparison three different types of gas water heaters are shown connected up, prices plainly shown on each. The same applies to electric heaters. The price of sink, drain board, pedestal basin, laundry tubs, water heater and laundry stove complete, etc., is plainly shown.

"The showroom enables us to show the prospect what the equipment will look like when installed and is a much more effective way of selling it than to try to show it from catalog. It also enables the customer to make comparisons, and few of

them will invest the money necessary for plumbing and heating equipment without making some comparisons to be sure they are getting good value," said Mr. Paddon, pointing out that the showroom is not used so much for the purpose of bringing prospects in off the street to interest them in these lines as to bring their own prospects to the showroom to give them a good idea of what they can expect. Mr. Paddon believes a showroom used for this purpose can be made an integral part of the business, but he is of the opinion that it takes more than the mere showing of these lines to interest prospects, therefore the showroom could hardly be looked upon the same as a retail store and made to sell a quota of equipment sufficient to pay upkeep expenses. The Paddon showroom is for this reason not located on a busy thoroughfare, but yet it is sufficiently central to be convenient to prospects.

"We Fix It"

"We Fix It" is the slogan used by the firm. It appears on the windows of the showroom, on the literature and on the trucks. Its use has been found valuable.

A big feature of the business done by this firm has been the jobbing work. A specialty has been made of such work by the employment of five trucks. Service is given on emergency calls by these trucks at any hour of the day or evening. A large volume of such business is done and with the special facilities employed it is made to pay a good margin of profit. Each truck is completely fitted up to handle all such work and they are on the go pretty well all the time. Much of such business comes in over the telephone. It has been found that the lower charges which can be made on such work by speeding up the volume is much appreciated by customers who formerly hesitated to pay for a couple of hours time of a plumber installing a washer or doing some other such small job.

A close watch is kept for prospects by the employees of the firm, but premise report cards are not used. Mr. Paddon stated that they found too much time was being taken up by the men on various jobs, they making the excuse that they were looking around for prospective business in buildings in which they were working. At \$1.25 an hour customers soon commenced to complain about having to pay for time consumed in such investigations, and if the customer were not charged the firm could hardly afford to stand the expense merely on the odd chance of getting some business from such reports. Mr. Paddon finds his firm enjoys more confidence

of its clients by having workmen go about their business in workmanlike fashion and not waste time.

Charging of Material

Questioned concerning the practice of charging for material and time on various jobs Mr. Paddon explained that whereas formerly a charge was made for all material which went out and a credit allowed on material returned, a straight charge for material actually used and time was now made. It was found under the other plan that any material lost or mislaid was being charged against the customer and some heated complaints made of this plan brought about the change. Obviously a firm could be much misunderstood by following such a plan.

Considerable business is done by this firm in new and renewal installations of heating equipment and recently a large number of installations of pipeless furnaces have been made. Contrasted with the development of plumbing business in new house construction, Mr. Paddon points out that heating installations can be done much more profitably, in view of the ridiculously low tendering done by certain plumbers on speculative construction work where contractors are anxious to jump at the lowest possible cost.

Furnace Work

A large section of the floor space in the shop is devoted to furnace work, complete furnaces, parts and other heating equipment being kept in orderly array. In order to develop new business Mr. Paddon advertises the pipeless furnaces very widely and canvasses builders and owners. He follows the building permits closely and in view of the fact that heating equipment is not installed until the buildings are fairly well under way, this plan gives him plenty of time to work up the prospects before the business is actually placed. He finds that pipeless furnaces have been very successful for various kinds of installations, particularly the compact style of bungalow home now so popular where the absence of long halls and distant rooms removes much of the former difficulty in using this type of furnace.

"We sell a large proportion of those whom we canvas in this manner and have had quite a number of installations this year to date," said Mr. Paddon. This means something, too, because there has been considerable building done in Windsor and district this year to date and real estate is selling rapidly to builders who are contemplating further construction.

Another plan which has done much to stimulate business and supplement the advertising effort has been the sending out of special literature to prospects. Mr. Paddon selected from the directory a list of one thousand names comprising builders and home owners whom he knew would be interested in heating and plumbing equipment. This literature dealt with the advantages of pipeless furnaces and modern sanitary equip-

ment. Many direct results were secured, bringing business in both new and renewal equipment.

Keeps Running Steadily

"Between the use of such letters and the consistent advertising campaign we keep running in local papers, our firm secure enough business to keep our plant running steadily," said Mr. Paddon. The emergency trucks continually running around town bearing prominently the firm name and the slogan "We fix it," were also said to be a standing advertisement of service and efficiency which brought many enquiries. While report cards were not used, it was found that many people took advantage of the presence of a plumber in the house to ask his opinion about certain plumbing or heating equipment and in this way it

was found the trucks used for small jobbing work frequently secured jobs involving extensive plumbing and heating installations in both city and country homes.

"Frequently we get a job installing a whole new bathroom or heating equipment, or installing a second bathroom or laundry tubs in old houses, from the connections established by this jobbing work," said Mr. Paddon. A summer resort district in close proximity also offers a good field for spring, many persons realizing that summer holidays can be made much more enjoyable if modern sanitary conveniences are available.

The tinsmithing shop is behind the office, and at the rear is a big shop for furnace and plumbing work. Here the most modern cutters and threaders, etc., are to be found.

Fifty Years a Plumber—Has Done Much for Sanitation in the Maritimes

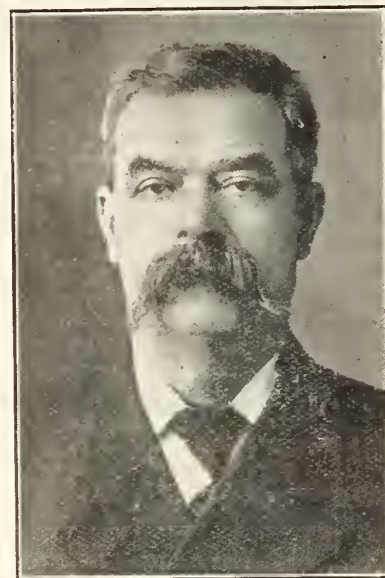
FOR fifty years continuously connected with the plumbing business, is the proud achievement and unusual distinction of Richard Walsh, plumbing and general sanitary inspector of the St. John board of health. Mr. Walsh is a man with a double longevity in service record, for he also served as a volunteer fireman for thirty-five years.

Mr. Walsh has been largely instrumental in placing into execution the program of sanitation adopted by the provincial department of public health as far as the St. John district is concerned. Because of his long and varied experience in plumbing, he was given a free hand and with the result that sanitary conditions in the St. John district, including the city and county of St. John, have been greatly improved.

Mr. Walsh was responsible for the banning emphatically of the privies and the substitution of modern sanitary systems in all dwellings. An energetic campaign resulted in the summary removal of the ill smelling as well as distinctly unsanitary privies. The consequence was that many thousands of modern plumbing systems were installed in the dwellings.

But the work did not cease there. Shower baths and the most up-to-date flush closets and sanitary lavatories were installed in industrial establishments in St. John under the general direction and supervision of Mr. Walsh.

During his service as plumbing inspector, covering about ten years, the master plumbers of St. John have profited as never before. The number of plumbing contractors multiplied until, whereas ten years ago, there were about twenty men engaged in business as plumbing contractors and jobbers, there are now no less than fifty. And, ten years ago, plumbing supplies usually were sold only in the wholesale hardware establishments. Now a dozen plumbing contractors maintain stores for the sale and display of plumbing supplies, including bath tubs, bowls, sinks, shower baths, etc., in connection with their workrooms and offices.



RICHARD WALSH



Showroom occupied by Paddon Co., Ltd., Windsor, Ont., is shown here. It is a shallow room extending across the full width of the premises and enables the showing of all sanitary and heating equipment, specialties, small accessories, etc., very attractively. Prices are plainly shown and various types of equipment shown all connected for purposes of comparison.

Asked concerning his opinion of markets at the present time, Mr. Paddon was of the opinion that it does not pay to lay in large stocks of pipe, sheets, etc. He believes in having adequate stocks to meet requirements, but points out that there is little use trying to speculate on a rising market because of the fact that some competitive plumber will take advantage of any stock he may have to place lower tenders for work, and if by chance the market sags instead, the plumber has to stand a loss on it. He figures the plumber loses either way, unless he is not subject to such stiff competition that he can take advantage of stock on hand on a rising market.

QUICKLY REPAIR DAMAGE FROM TORNADO

The city of Guelph and immediate vicinity suffered heavily in the tornado which did upwards of two million dollars damage in the province on Monday, June 25. During the twenty-five minutes that it took the storm to sweep through Guelph, \$250 000 damage was caused, and three people were killed within a radius of ten miles. The large plant of the Ontario Malleable Iron Co. was in the direct path of the storm, and a large section of the roof of the foundry was blown in. Fortunately the men had quit work for the day or a serious loss of life must almost certainly have occurred.

With characteristic energy the company had a contractor on the job immediately, and a gang of sixty men working

day and night soon accomplished wonders in clearing things up and rebuilding the damaged buildings.

When a representative of Sanitary Engineer visited the plant, just three days after the storm, practically the full staff of moulders was at work in the foundry, just as though nothing had happened. Officers of the Ontario Malleable Iron Co. assured our representative that their output would not be interfered with to any appreciable extent, and orders would be shipped about as usual.

BOOKLET ON SANITATION

The federal department of health has just issued a brochure on Sanitation, dealing with the subject of sewage treatment for isolated houses and small institutions where municipal sewage system is not available. The urge for such information has been so insistent and, having in mind the health and welfare of the people, it was considered advisable to have the subject dealt with in a scientific and thoroughly practical manner. The publication is generously illustrated,

emphasizing the application of the advice given. Homesteaders, summer cottagers and trustees of small institutions are strongly advised to avail themselves of the information contained in this publication, which can be obtained free on request from the Deputy Minister, Department of Health, Ottawa.

STAMFORD WATER PURE

Niagara Falls, Ont.—An official of the Provincial Board of Health has been in the township making an analysis and investigation of the Stamford water supply, and reports that it is beyond reproach. The pipes, however, have become impregnated with contaminated matter and a chlorinating plant has been installed.

BRITISH TINPLATE INDUSTRY

The success of the British tin plate industry has been manifested in the past year by the fact that the British plants, owing to lower labor and operating costs, have been able to bid more for Bolivian tin concentrates than the mills of the United States have been able to offer.

WILL INSTALL FILTRATION

Oakville.—Acting on the suggestion of the Provincial Board of Health and the recommendation of the local board, the town council has instructed the Water and Light Committee to call for estimates on the installation of a filtration plant.

"IT IS A DANDY"

"We are very much pleased with Sanitary Engineer in all departments. It is a dandy."

W. C. Hibbert, Carman, Man.

Septic Tank Layout for a House Occupied by Ten Persons

Plumber is Not Sure on a Few Points in Connection With Such an Installation—Size of Tank Determined by Number of People in House and Allowance of Gallons of Water Per Person Each Day

EDITOR, Sanitary Engineer:—Will you please publish information regarding a septic tank to take care of sewage from a house to be occupied by 10 persons? I am asked to install one and am not quite sure about a few points. Could I use 3 inch, 4 inch, 5 inch or 6 inch tile or is 4 inch the only suitable size to use? How many four inch tile would I need for a tank of the size necessary for 10 persons? Does the tile pipe have to be laid below the frost line, where we have real cold winters? H. S. McMurray, Chesterville, Ont.

Answer—The accompanying illustrations are plan and elevation, complete with all the necessary sizes for a septic tank suitable for a building occupied by 10 persons. The size of a septic tank is determined by the number of persons occupying the building and the allowance of gallons of water per person per day.

The septic tank portion, known as the dosing chamber is first considered by the amount of sewage to be discharged per day, and, in the sizes given an allowance of 27 gallons is made, per person per day.

Now, it will be noted that the amount

of sewage to be discharged is 270 gallons each time the syphon operates, and, the rate of discharge from a 3 inch syphon is between 80 and 90 gallons per minute. This being so, sufficient field tile must be provided. One foot of 4 inch field pipe will hold one half gallon of fluid, therefore it would be necessary to lay 540 lineal feet of field tile in the disposal bed. These should be laid level and open at the joints about one quarter of one inch. Broken stone, coarse gravel or coarse railway cinders ought to be laid over the joints, but such material is not easily available. A covering over the whole system of field tile is very desirable.

It is advisable to use 4 inch field tile pipe for several reasons, chief of which is, that the ground will absorb such a quantity as is easily distributed through such a size. And, by laying such open jointed tile pipe not closer than from 3 to 4 feet, the ground is kept in a suitable condition.

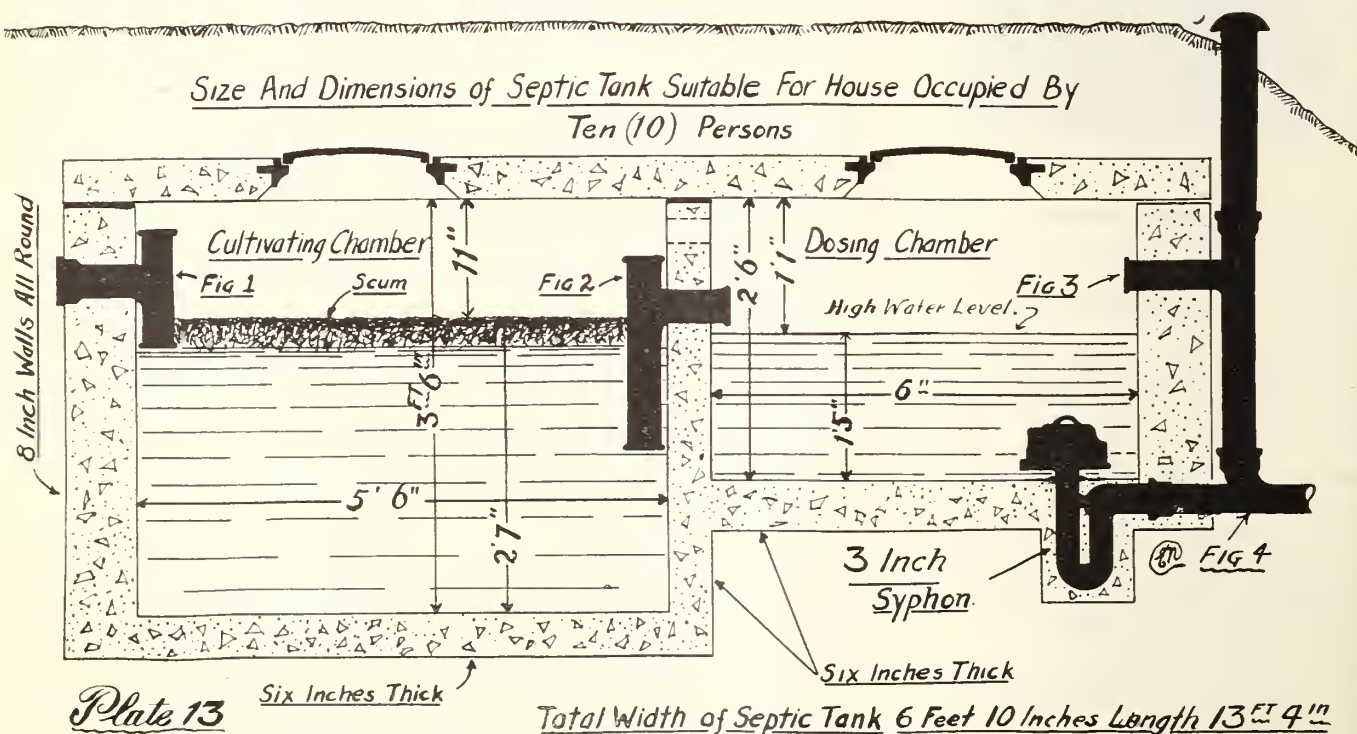
Another reason which is a good one is that the outlet of a standard 3 inch syphon has a 4 inch discharge outlet, and as the main trunk line of piping and branches too are 4 inches in diameter

the force of discharge removes any sluggish flowing matter from the pipes and in a way assists to keep the pores of the ground open.

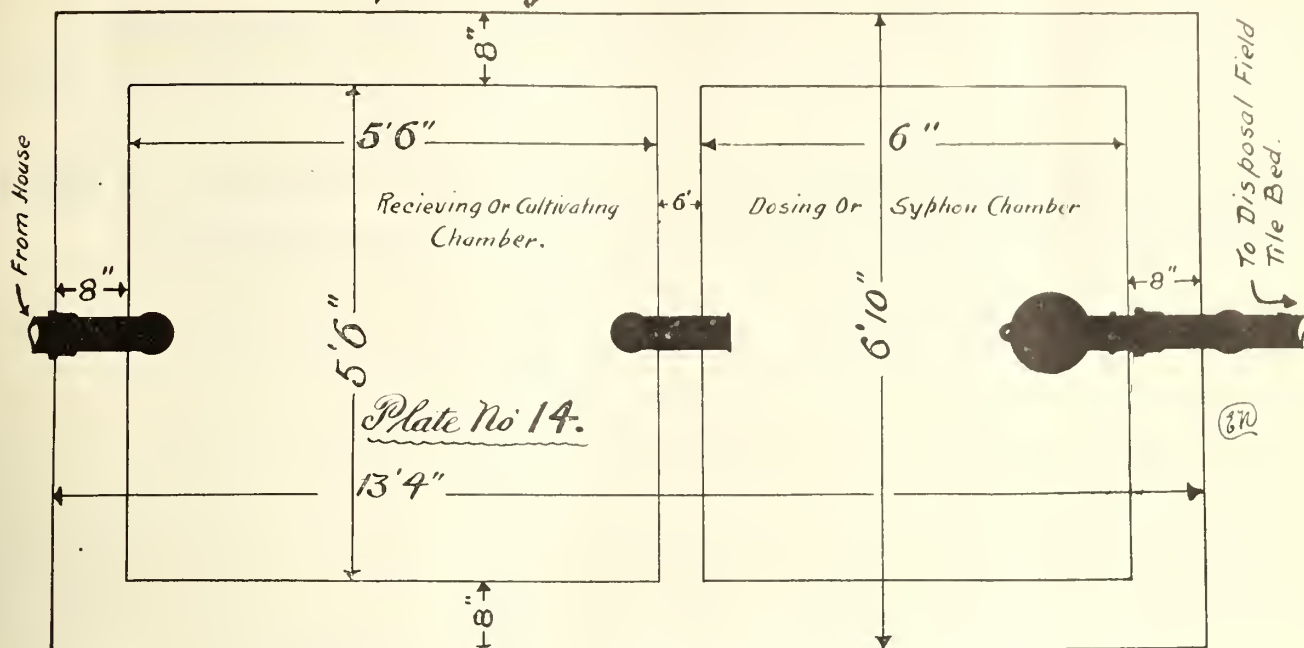
If larger pipes were installed and the same size of syphon used, the force or pressure so necessary, would be non-effective. If a smaller size of field tile pipe were used, a back pressure would, in the form of resistance, interfere with the easy discharging of the syphon.

The question of freezing need not be considered because the bacteria in the effluent from the dosing chamber is of such a nature that will not permit of freezing provided that the pipes are not laid too low.

It would appear to be almost a contradiction to make, but it is nevertheless true, that if a system of disposal field tile is laid about 18 inches to two feet below the surface of the ground they or their contents will not freeze. But on the other hand if laid too low they will freeze, for the following reason: The bacteria on or near the surface of the ground in co-operation with the bacteria in the sewage discharge are always very active. There are few of the necessary bacteria in the ground below 24 inches.



Plan With Size Of Septic Tank Suitable For House Occupied By Ten (10) Persons.



That is why the pipes do freeze when laid too low.

Some time ago one of our readers being somewhat skeptical of this statement decided he would take no chances, and he laid the pipes below the frost line and the pipes froze solid. Why? Because if anything will draw frost it is water, and, seeing that no bacteria

(or very few) are present in ground at a depth of several feet, the bacteria in the effluent died and of course the moisture of fluid without life just simply froze solid. If the information given herewith is followed out, both in the description and in the illustrations, there is very little likelihood of experiencing any trouble.

Technical Editor.

office. A separate permit must be obtained for digging a trench for sewer or water pipes.

Considerable discussion centered around the clause calling for an annual inspection of the plumbing in all buildings, except dwelling houses, and of dwelling houses, upon change of tenants. The owner of the house must make such improvements in the plumbing as to make it conform with all the provisions of the plumbing bylaw. It was finally passed.

Plumbers Must Pass Examiners' Tests

New Regulations Call for Establishment of Licensing System in Regina—Establish Reciprocity

REGINA, Sask.—The establishment of a board of examiners and a licensing system for plumbers was tentatively agreed to by the city council, despite opposition from J. A. Birt-whistle, sanitary inspector for the city.

A large delegation of city plumbers attended the special meeting held to consider the plumbing bylaw with 11 clauses. Most of the clauses were given a second reading, and the remainder will be taken up at the next council meeting.

Under the new regulations, a license will have to be secured within thirty days of the passage of the bylaw by any person wishing to work at the plumbing trade in this city. Application for such a license will be made to a board of examiners, consisting of the plumbing inspector of the city of Regina, and two practical plumbers, a journeyman and a master plumber, appointed by the medical health officer, and one member appointed by the city council.

The \$100 annual fee for master plumbers was a matter on which there was not general agreement. The bylaw

also provides a fee of \$2 for journeymen plumbers for the first year and \$1 for succeeding years.

It was agreed to approach Saskatoon, Moose Jaw and other cities where a similar bylaw is in force, with a view to establishing reciprocity between Saskatchewan cities.

Several clauses of the new bylaw mark a new departure from previous regulations. Application for permission to do any piece of plumbing must be made to the office of the medical health officer, and where considered necessary, a plan of the work must be filed with the same

FIND UNSANITARY SCHOOLS IN HAMILTON

Hamilton.—Sanitary conditions at the Murray street school are nothing short of deplorable, so a deputation of members of the building committee of the board of education discovered when making a tour of inspection this week.

This and another school have been condemned by the board of health, it was stated, and the action of the health department was easily understood by the trustees after making the inspection. In some parts of the Murray street building the odor from antiquated plumbing equipment was overpowering.

The question will come before the building committee of the board of education. Appropriations will be sought from the council for the reconstruction and improvement of the schools in question.

REPRODUCED "SANITARY ENGINEER" EDITORIAL.

In a recent issue of the *Ottawa Citizen*, prominence was given to a reproduction complete of the editorial appearing in *Sanitary Engineer*, entitled "Saving Fuel Waste."

Metal Worker, Chatham, N.B.—Where can I procure a book called *Country Cornice Worker* and a book on roof work and copper flashing.

Answer.—From the U.P.C. Book Co., Inc., 239 West 39th St., New York, N.Y., U.S.A.

Heating and Ventilating Department

New Heating Furnace Used for Steam, Vapor Water or Warm Air and Ventilation

Can Also Furnish Moistened Air. Newly Patented Furnace Has Novel Features—Claimed to be Real Fuel Saver—Has Combined Humidifier

Written for Sanitary Engineer by EDWIN NEWSOME, Consulting Sanitary and Heating Engineer

ON EVERY hand is heard the cry that the heating of buildings and particularly dwellings appears to be costing too much money. People are building houses that cost upwards of \$15,000.00 and are installing warm air heating furnaces. Not far from the home of the writer, a man built a house costing \$12,000.00 for which the land cost less than \$1,000.00 and a warm air furnace is installed therein. Why? Because of the apparently high cost of hot water, steam or vapour heating.

Of course this does not mean that dollar and cent value is not represented in such systems of heating. To the average heating engineer, it seems a pity to see houses costing such sums as the above mentioned, being heated with warm air furnaces, but what is the solution?

The public demand appears to be for low cost heating systems, and with that in view, inventors all over the world are endeavoring to design furnaces and radiation that can be produced at a lower cost in terms of dollars and cents.

Three years or more ago A. E. Streadwick, Toronto, began to experiment with certain new and novel designs of heating apparatus, and finally he completed what is said to be one of the most flexible types of heating furnaces of the day. It is claimed to be the very essence of simplicity, and one that can be used as a steam furnace, hot water furnace, or warm air, or hot water and warm air.

Separate Units

This furnace can be made up in separate units so that one or more parts of a building can be separately heated. For example if one part of the home is so far away from the furnace that it is almost impossible to secure satisfactory circulation without some other part of the house being robbed of heat, the furnace can be constructed so as to furnish an entirely separate heating member for that part of the house.

Fig. 1 shows how this is done, and it can readily be seen that if more than

two heating circuits are desirable they can be arranged easily, because of the simple square circuit construction.

The principle adapted is very simple and positive, it is merely a number of square coils so arranged tier upon tier with, according to the number of units, the usual flow and return, all of which are separate from each other, making it impossible for one pair of flow and return pipes to rob another. This is a novel idea and one that may find favor with many heating engineers.

No Large Body of Water

Most heating furnaces are so constructed that there is actually no true circulation: the water is very often baffled in some way or other and has to travel in an unnatural way into vertical headers, all of which water motion tends to restrict rather than encourage circulation and also makes it necessary to hold large bodies of water in the furnace.

The most efficient heating unit the

world over is found to be, by actual test, some form of coil. (Note the gas water heaters.) In the city of Hamilton and in many parts of this continent there are houses being heated with three or more ordinary 25 feet copper coil gas water heaters, so that the principle embodied in this new furnace is well established, and by the addition of a steam dome the furnace is readily changed from hot water to steam.

A Combination Heater

This furnace can be used as most other furnaces are, merely as a hot water, steam or vapor furnace, but it can also be adapted as a combination of either the above with warm air.

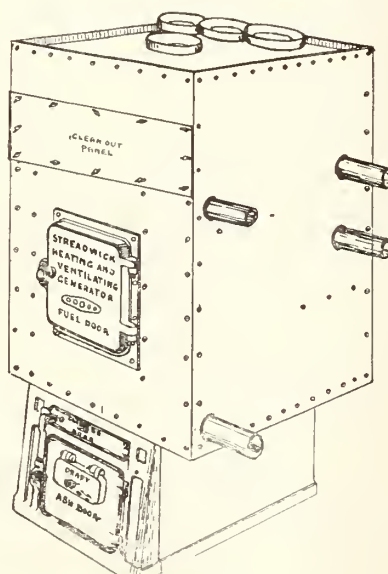
The outer casing made of transite asbestos is so designed that it operates just in the same way as a warm air heating system, by connecting several warm air outlets to the ordinary base boards or floor warm air registers, and there is not the dust to contend with as is found with the regular warm air furnace.

A Combined Humidifier

Not only are heating engineers convinced that to properly heat a house, some positive method of moistening the warm air is necessary, but the most notable health authorities are viewing with a great deal of alarm the increase in cases in tuberculosis, asthma and other pulmonary victims. This, the inventor has not overlooked in that a water pan is designed as part of the supporting casting, making it actually a part of the furnace and not merely an addition that may be added or eliminated at will of the heating contractor, as is very often done when close tending on a job is a big factor.

Description of Two Units

In Fig. 1, two units are shown, one the lower unit with its own flow and return and the upper or number 2 unit with flow and return, and by perusing the other illustrations, Figs. 2, 3 and 4,



Sketch of the Furnace.

the water travel can be easily traced up from the return to the flow. It can be readily seen that any number of separate units can be provided for the purpose described.

Fig. 1 is a front view of the furnace with the front portion of the casing and the fire door removed. Fig. 2 shows a side view giving grate detail as also does Fig. 3, while Fig. 4 gives the reader an idea of the square coil formation with gas vents, inlet and outlet of water flows.

Novel Grate Construction

Most grates furnished with regular house heating boilers, and not a few boilers for heating large institutions and buildings, are of the simple rocker type. The grate in this furnace is still another departure from the conventional; there are four sections, all operated by one shaker handle, but the movement is very much different. The grates are first elevated, then brought slightly forward, and all are on an inclined plane so that all the ashes or clinkers are gradually brought to the front of the furnace, making it easy to remove such waste, or to dump the furnace.

VANCOUVER PLUMBER WRITES

Sanitary Engineer, Toronto:—

We always look forward to receiving Sanitary Engineer, taking special interest in your replies given in the "Questions and Answers" Department. We always study the technical articles and they are real good.

Wishing your paper all kinds of success,

Walden Bros., Vancouver, B.C.

The furnace used for the three year test contained 35 lineal feet of special tubing with direct and continuous circulation upwards. The heating surface being equal to 19 square feet was fitted to 236 square feet of hot water radiation, and although the regular requirements of radiation should have been 250 square feet, the test showed that by adopting the warm air combination, twenty per cent of radiation could be closed off.

The complete furnace is comprised of

grey iron castings, the base, firing door and ash p.t. door, shaking grates lever and damper and humidifying base with grate supports.

Detail Description of Complete Furnace

The furnace proper is made of one, two or more units of round tubing square coiled and mitered, not threaded; all the miters are electrically fused and no part of the coiled tubing is in any way restricted. Every part is in direct contact with the fuel, no matter what the fuel used may be, soft coal, hard, small or in lumps. Wood, oil or gas fuel can be used equally well, without making any change whatever.

The combustion chambers are made up of a number of transite asbestos baffles, as also is the inner and outer casing.

The inner casing cover can be constructed either of asbestos or grey iron with a number of pyramid pockets, these increase the heating surface considerably in connection with the warm air heating combination.

Cleaning and Inspection

Fifteen minutes is all that is necessary to clean out and inspect the furnace.

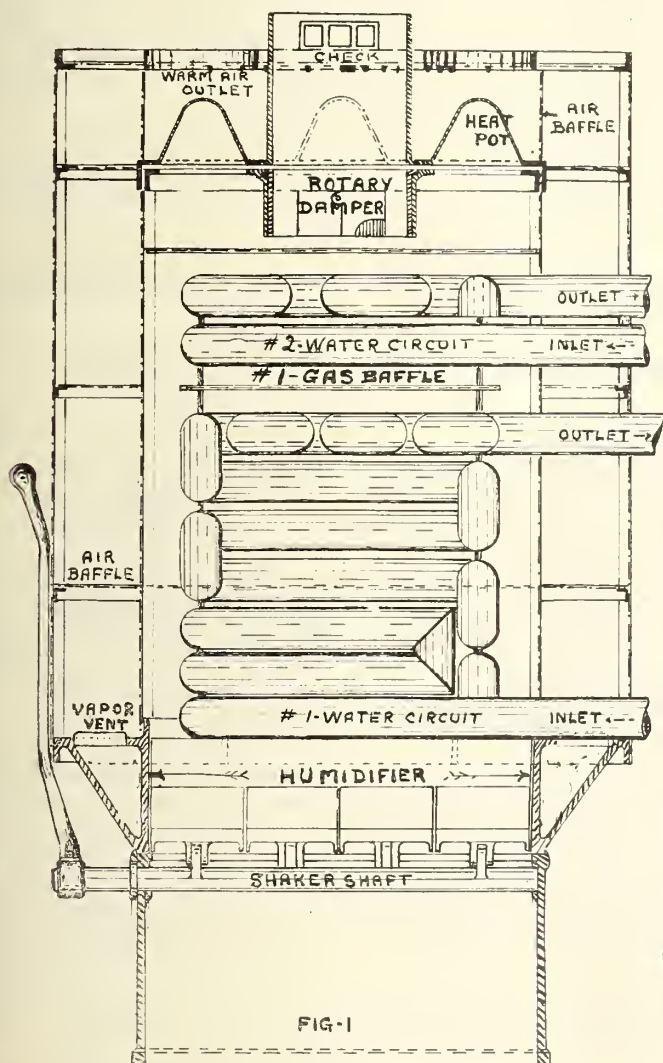


FIG-1

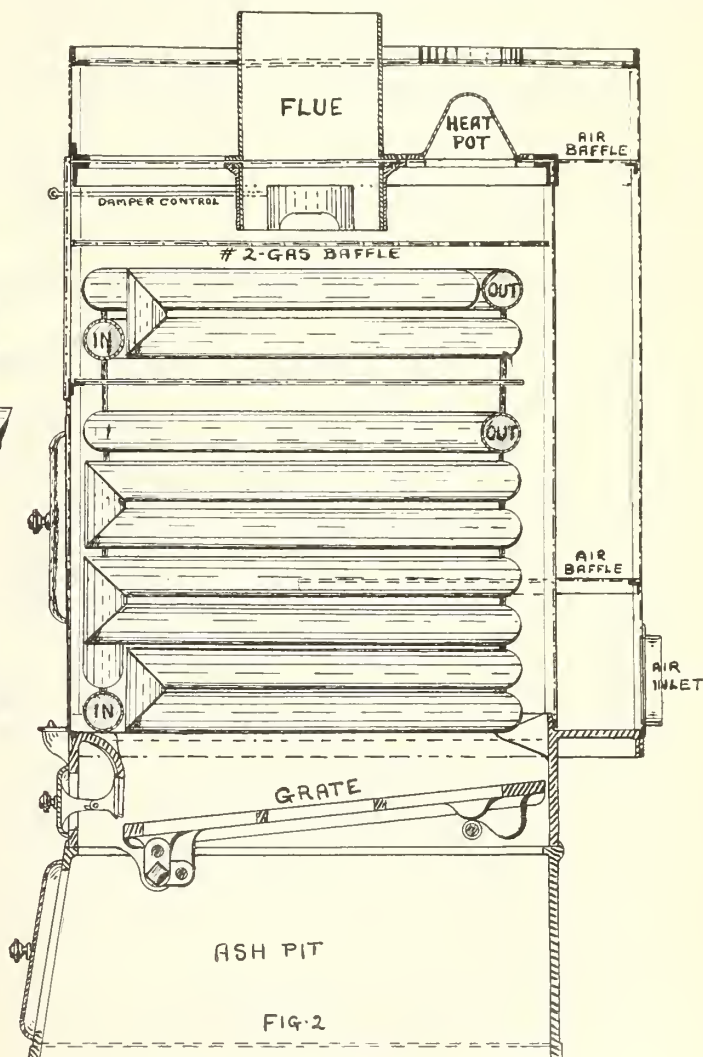


FIG-2

Figs. 1 and 2 being cross-section of side and front of furnace.

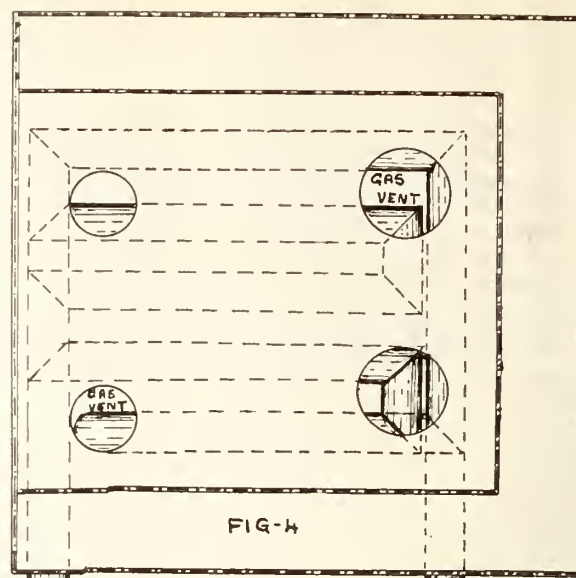
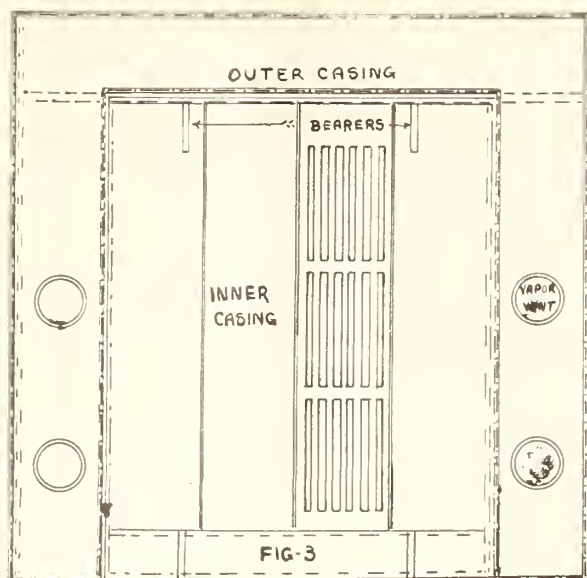


Fig. 3 gives grate details while Fig. 4 gives an idea of the square coil formation with vents, inlet and outlet of water flows.

this latter is accomplished by moving the panel clean-out door shown in the perspective illustration. The baffles can be removed and the whole operation performed while the furnace is in operation.

TIN SMELTERS IN UNITED STATES TO CLOSE SOON

Two of the five tin smelters of the United States will close on July 1, according to an announcement made in tin circles here recently, and will remain

closed until business improves. The American Smelting & Refining Company's plant at Perth Amboy, New Jersey, is one of the big plants that will close next month.

United States production of tin was an outgrowth of the war. Prior to 1914, Bolivian tin mines sent their product to German and British smelters for treatment, and the United States bought its tin in plate form.

During the war Germany was out of

the market, and Bolivian concentrates went to the United States, where plants were erected or converted for the treatment of these concentrates. Singapore also shipped some tin foundation to the United States, the concentrates passing through this port.

These American smelters have now been forced to close because of their inability to compete with British exports of tin plate.

Another City Where Gas Company and Master Plumbers Co-operate

FOLLOWING out the plan recommended in the last issue of Sanitary Engineer in connection with the relations of gas companies and master plumbers, it is interesting to note the progress made along this line in the case of Tacoma, another United States city where smoother relations now exist between these factions. Here's what the Tacoma Master Plumbers' Association has to say on the subject:

"What the gas company sells is gas. That sounds easy and it doesn't seem to have required any special research, but how many master plumbers know it? Gas stoves, lighting fixtures, water heaters? Certainly gas companies sell them, and on attractive terms, too. But the main idea is not to sell stoves or gas mantles or water heaters. The main idea is to sell gas.

"The master plumber doesn't care about the selling of gas. His business is to sell and install fixtures. The trouble has been that the gas companies in most cities can't tell from the activities of the plumbing trade whether they want to sell and install fixtures or not.

"The Tacoma Master Plumbers' Association, however, decided that the fixtures should be sold by the members, and told the gas company so. They were surprised to find that the company thoroughly agreed. In fact, the gas company was selling its appliances more in self-defense than for any other reason.

"So an agreement was struck off. And so far as the Tacoma plumbers are concerned the agreement is all to the good.

"According to the arrangement the plumbers sell and install the various appliances; and, in order to facilitate and encourage display and merchandising, the plumbing dealers aren't even going to have to pay for the gas used for this purpose.

"There is co-operation with a vengeance.

"And when the gas company sells a stove or anything else through its own rooms, and when the appliance requires piping, the plumber is called in to do the job."

Where to Look for Summer Business



There's Money in dairy farming

But, like anything else worth while, the most profitable way to operate a dairy farm is the right way!

Good, pure bred stock can prove its worth only when given proper care. Just as important as food or stabling, and often neglected, is the water supply!

Carrying pails of water to thirsty cattle is a back-breaking task and an extravagant waste of time and labor.

Running water on the farm means more and richer milk yield, because the water is always fresh and at the right temperature.

Ask us about it. We'll talk facts to you!

YOUR NAME HERE

Phone No. Address

How to Order Advertising Material

Advertisements in each issue will form a complete month to month advertising campaign for your use.

These are only a few of the electros available in this service. Complete catalog of all illustrations available to date will be mailed on request.

The catalog gives serial numbers on each illustration and the price is quoted. Prices range from 30 cents to \$1.00 for electros according to size.

In ordering from catalog write plainly the serial number of the illustration and send remittance to cover the order in order to save cost by avoiding book-keeping expense.

By Courtesy, National Trade Extension Bureau

Personal hygiene



cannot be properly practised in a large household with only one bathroom. Human nature demands full convenience as the price of such observance. Frequent waiting discourages frequent bathing.

We specialize in modern, extra bathrooms, economically installed. Visit our store; ask for particulars.

YOUR NAME HERE

Phone No. Address



A bedroom lavatory

is no longer a luxury. Women find it a welcome aid to convenience and privacy. Men find it a short-cut to a comfortable shave.

Guest rooms, especially, are far better appreciated when equipped with a (....) pedestal lavatory. See them here.

YOUR NAME HERE

Phone No. Address

Extra lavatories increase comfort!

In bedroom and guest room added lavatories quickly prove their worth to the home-owner. They serve convenience when time is short. Both guests and family appreciate the relief from the embarrassment of relying upon the bathroom alone.

There's a bedroom lavatory here that you'll like both for appearance and price. \$0.00 to \$0.00.

YOUR NAME HERE

Phone No. Address

Tinsmithing and Sheet Metal Work

Making Pipe Connections That Must be Made in Taper and in an Offset at Same Time

NOW and then the workman finds pipe connections that must be made in a taper and in an offset at the same time. Fittings of this kind are more frequent in furnace work than elsewhere, and so we might ascribe this problem to that field of the work.

First, draw the elevation, making the central line 1'-7-8-8' to the desired angle and rise. Then bisect the miters c-d and a-b. After which describe the half-sections A and B to correspond with the diameter of pipe that must join to these ends. Divide these half-sections in any number of equal spaces and square lines into the miter line as shown. This will give points 1-3-5-7, etc., also points 2-4-6-8, etc. Join these points with the triangular lines, thus giving body to the middle piece and also dividing it into triangles. Be sure to draw your lines so that you will step from one point to another, as from 1 to 2; 2 to 3; 3 to 4; 6 to 7, etc.

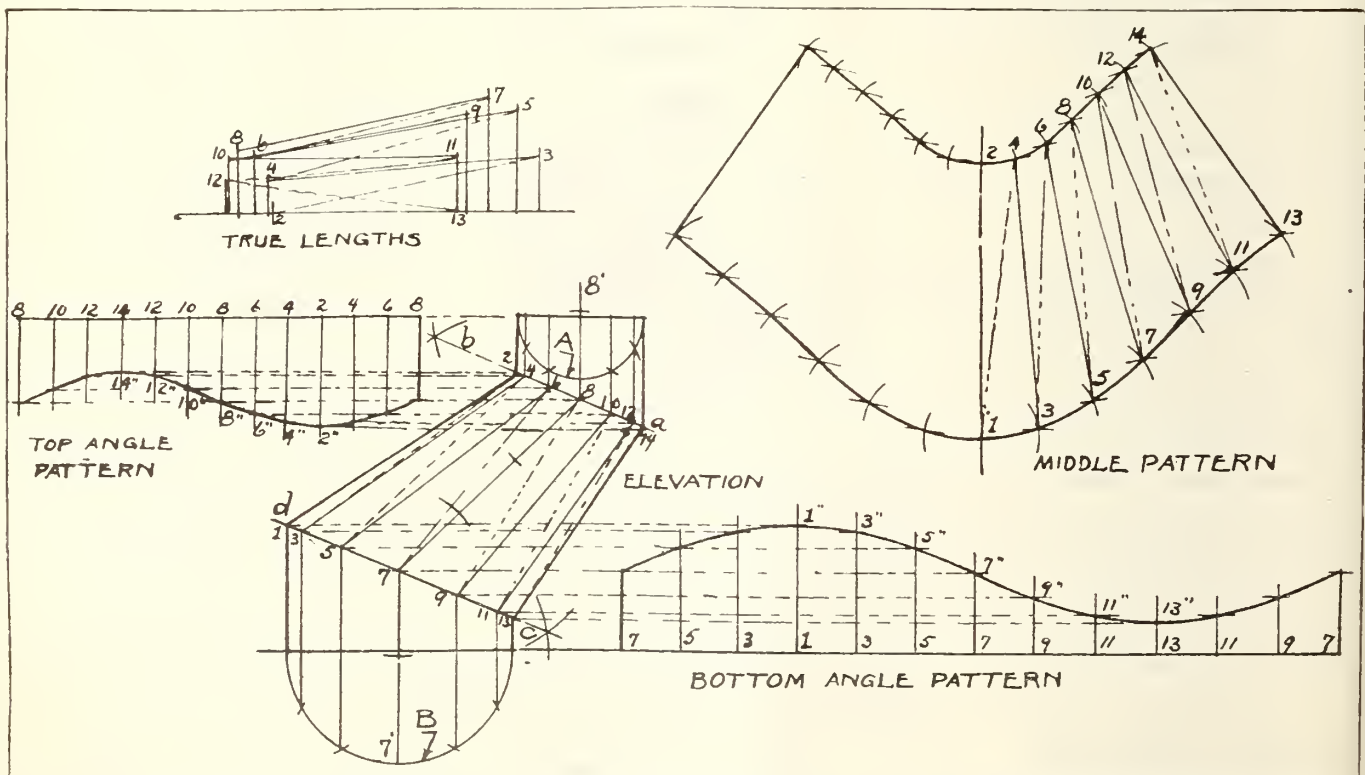
To obtain the true length of these lines we must pick them up and set them over into the diagram of true length. So we pick line 2-3 and set on a horizontal

line; from point 3 in this line we erect a line equal to line 3 of section B. Then join 2-3 with a line, and this is a true length. Next pick the elevation line 3-4 and from the last point 3 in horizontal line of diagram, set line and erect a line from this point equal to sectional line 4 of A. Then join 3-4 with a line and you have the true length. After this pick line 4-5 and from 4 in the horizontal line, set off this line and erect one equal to the line 5 of section B, and 4-5 is the true length. Repeat in this way until all lines have been transferred in their relation into diagram as true lengths as shown.

To set out the patterns observe that the end angles set on the middle piece and, therefore, we must first develop the pattern for angles at top and bottom so that we can pick the girth as 2"-4"-6"-8", etc., also 1"-3"-5"-7", etc., that we may use these spaces as girth spaces for developing the middle piece. Observe this saves developing two sections through the miter line, and as we must have the angle anyhow we might as well use those miter cuts for girth spaces. So for

the pattern of the top angle pick the girth from section A and develop the same as any ordinary elbow. In the same way to develop the pattern for the lower angle, pick the girth from section B and set off as 7-7, then project your lines and you will have the pattern.

To start the middle pattern draw any line at 1-2 equal to 1-2 of the elevation. Then pick girth space 1"-3" and 2"-4" from our angle patterns, and using points 1 and 2 as center, strike arcs at 3 and 4. Then pick the true length 2-3 from diagram and using point 2 in pattern as center, cross arcs in point 3. Next, use true length 3-4 and with the new point 3 in pattern as the center, cross arcs in point 4. Next, pick the girth spaces 3"-5", also 4"-6", from angle patterns and using the new points 3 and 4 in pattern as center, strike arcs as at 5 and 6. Then pick the new point 4-5, and using the new point 4 in pattern as center, cross arcs in point 5. After this pick the true length 5-6 from diagram, and using new point 5 in pattern as center, cross arcs as in point 6. Repeat in this way until all points 13



Working Drawing Shows How to Make Pipe Connections in Taper and in an Offset at the Same Time.

and 14 are established. Then draw lines through all points where arcs cross and you have your pattern finished. Owing to the tapering nature of this middle piece, edges for peaning or riveting

should be allowed extra, otherwise in bending the edges our fitting will become a little smaller and our end pieces are liable to telescope into the middle piece.

Patterns for Gable With Scroll Attached

For Buildings Finished in Gable Effect With Short Runs of Horizontal Moulding

SOMETIMES buildings are finished with a gable effect with short runs of horizontal moulding and these finished in a scroll as in the sketch of this drawing.

This will be much the same as the coping ending in a scroll we considered some time ago.

So here we first draw a detail of the moulding to be used, as shown by the shaded section.

Divide this detail so the curves are in equal spaces, number each point and bend, and then project lines both ways.

Draw the pitch line E-D and bisect the angle and establish the miter E-B. After which extend the elevation lines until they meet as center line of gable. This center line can be moved downward to enable convenient development. Space in the shop does not permit making extended spaces between miter cuts, and

so the miters must be crowded together in order to find space to develop them. Then on the other end as at A-F detail the scroll, which acts as a finish to the moulding. Now as the miter B-E is an equal bisection of the 2 angles, the same girth can be used for the gable or the horizontal mould.

So pick the girth from the section and set as in pattern "A" and also in pattern "B." Draw stretchout lines so they are parallel with the run of your elevation and then from each miter line project lines so they will be square to the run of elevation until they intersect stretchout lines of similar number. Join these new intersections with lines and you have the pattern finished. The spiral is already a pattern only in the spiral line a-b a tapering strip as at "M" is planted so as to set out the spiral. Otherwise this all there is the above development.

Laps must be allowed for seaming and riveting the miter joints.

EXPERT RECOMMENDS CENTRAL HEATING

Winnipeg, Man.—"Although I have not had time to make more than a brief survey, I see no reason why I should not assure you that central steam heating should be perfectly feasible and a good business proposition in Winnipeg," said S. G. Neiler, engineering expert of Chicago, addressing the public utilities committee. Mr. Neiler is the expert brought here by the city to investigate conditions as a preliminary to the establishment of a central heating plant.

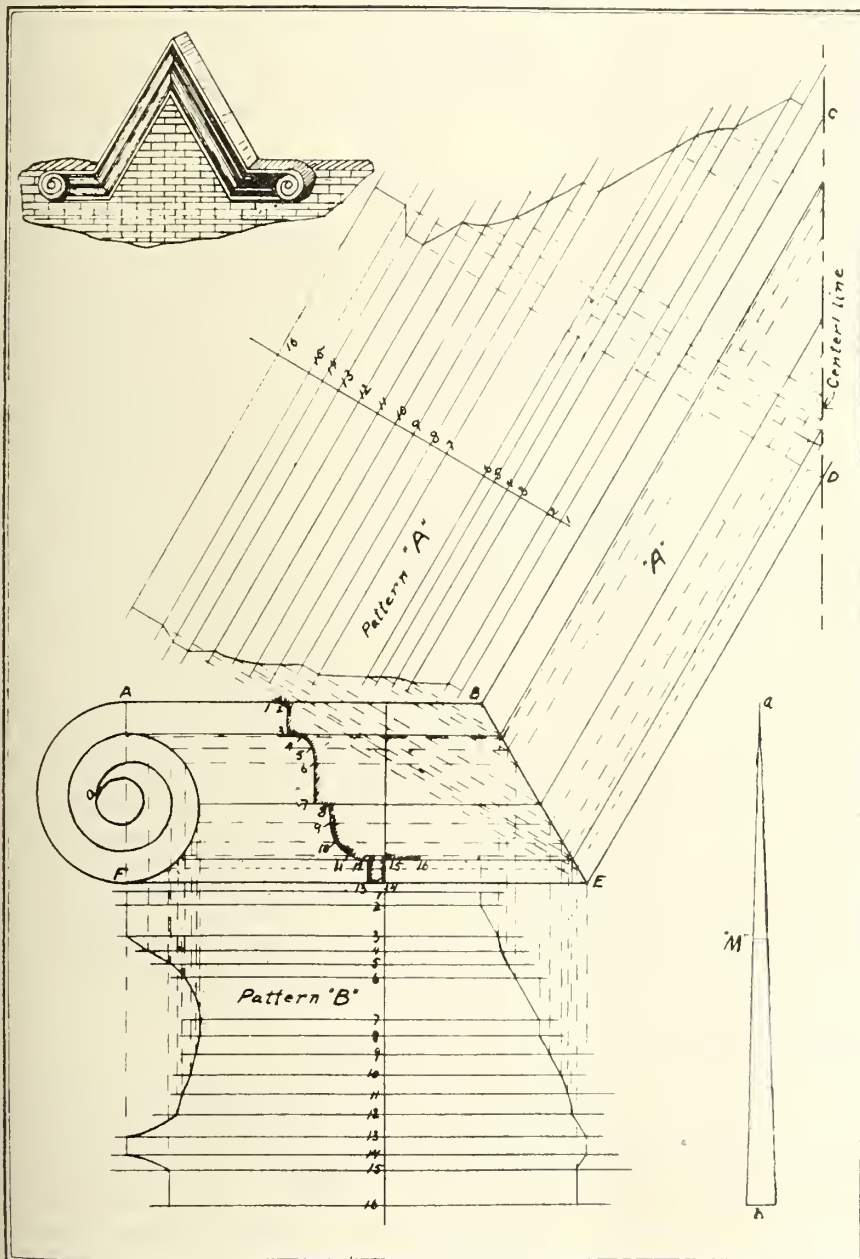
In a city where heat is needed for so many months of the year, Mr. Neiler said, the plan should be even more satisfactory than in more temperate places. As a general thing, plants of this character had been found to pay well.

Mr. Neiler thought that if the service should be extended to the residential districts, most of the residents probably would be glad to accept it, but he was inclined to recommend that at first it should be confined to a central district.

UNIQUE HEATING FEATURES

Montreal.—The new pathological building of McGill University is to be fitted up with many wonders in the way of modern mechanical equipment.

The building will be heated by a forced hot water system. High pressure steam, supplied by the boiler plant of the Royal Victoria Hospital, is brought to the pathological building in a tunnel connecting the two buildings. By means of this steam, water is heated in hot water converters and is then forced through the piping system to the radiators of the building by motor-driven pumps. There is no automatic temperature regulation in the various rooms but temperature regulating apparatus controls the temperature of water leaving converters.



Patterns for gable with scroll attached.

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Building in Canada

FIGURES relative to the building industry, as secured by Sanitary Engineer, indicate that in fifty-six cities throughout Canada building during May was practically the same as in April. Value of building for the month approximated seventeen and one-half million dollars. Of this amount there were 2,500 permits for dwellings and 4,700 permits for garages, stores, factories, etc. All provinces except Quebec and British Columbia indicate a greater anticipated activity in building. In the case of the former there was a considerable decline. The most pronounced increase for the month was in Ontario, where it amounted to 31 per cent. These figures not only give an idea of the amount of building being done this year but they indicate what class of building predominates. Such figures should be helpful to sanitary and heating engineers in planning local measures to stimulate business.

No Need for Alarm

REPORTS of business conditions from the craft in various parts of Canada continue to vary greatly. Much complaint is made in some quarters about continued price cutting and low tendering by plumbers who have not enough knowledge of their business to realize that they are doing such work very often at a loss. But the fact remains that the aggressive plumbing firms which are selling their customers on the basis of guaranteed workmanship, good service and fair prices, are able to maintain a steady rate of work throughout the various seasons.

As long as there is a speculative building boom in progress such as is the case in many cities at present, there will be a tendency among builders to accept lowest bids for plumbing and heating installations irrespective of the class of workmanship, as long as it passes local requirements. This is business, however, and no steps can be taken to legislate such competition out of existence. The point is that such operators are not establishing for themselves a goodwill and permanent reputation of a character such as will bring them increasing business over a period of years, and speculative building of this character cannot continue forever.

Complaints of this nature and others concerning the inroads of other trades into this field are heard from business men following various lines of trade, but the answer is that competition as a natural influence will in the end bring success to those firms which conduct their business in the most economical manner, giving best service and fair prices to customers. The price cutter as a rule is short lived but he disturbs things while he lasts, and there is no proof that the

unobtrusive manner in which many of these cut-price plumbers operate really helps them to reduce costs any. An investigation would rather seem to indicate the opposite to be the case for showrooms and downtown offices have their place in influencing the public and in facilitating the merchandising of plumbing and heating equipment. While facing such price competition the plumbing concern which believes "every man is worthy of his hire" must develop new business, as an alternative, and judging from articles appearing in current issues of Sanitary Engineer many firms are doing so successfully.

High Powered Competition

IT IS seldom one hears of orders for manufacturing or process work going from Eastern Canada to the West. It may either be an indication of a change in practice or only a coincident, but the order for ornamental iron and bronze work on two big new additions to departmental stores in Toronto has been granted the Dominion Bronze and Iron Company of Winnipeg. It is odd that with the big freight haul on raw materials and finished product that a concern 1,500 miles from Toronto can outbid local concerns. It is another sign of the more highly competitive condition into which business is developing.

Business Insurance

"I FIND human nature reacting favorably," says a writer in

The American Magazine, "every time I publish a picture of a baby or any cute story about a child. All the world loves children. And now let me put in a piece of good advice to every business man who reads this: Don't ignore the children in your community; because one of the fastest growing things on earth is a child. The man who runs a store, a newspaper, a bank, or anything else depending upon the public for good will and support is the biggest fool on earth if he thinks he can ignore the children. The kid rolling a hoop under your feet, or roller-skating all over your sidewalk and making a lot of unnecessary noise to-day, is simply notice to you of the energy that is going to run your town to-morrow. A boy or girl fifteen or sixteen years old has only five or six years to go before he or she will be playing an important part in the affairs of your town, and every one of them is a potential factor to be reckoned with. Those of the older generation who find themselves being crowded aside by younger men and women are those who neglected to run along with those same youngsters when the running was good. The kiddie that you befriended to-day will love you and respect you as long as he lives, if he's the right sort of kiddie; but if you cuff or wallop him he will never forget that; either. Take my own case: The great influences that shaped my life were mostly commonplace incidents in the lives of a few kind-hearted men and women who said an encouraging word here and there, or did some helpful thing for me when I was a kid."

A MEDICAL man of high repute says that six years have been added to the lives of average persons since the year 1900. Sanitation has done it, he says, and sanitation may add another six years to the average quota if certain scientific suggestions are carried out by municipal, state and federal authorities. This is cheering news—much more comforting than all the talk and gossip about the ravages of tuberculosis, cancer and other diseases said to be lurking in the path and ready to spring upon humanity. Truly the plumber has a big responsibility toward mankind.

MINUTE MESSAGE

Number Nineteen

Written for "Sanitary Engineer" by FRANK STOCKDALE

General Selling Series



Knowledge is Power— Let's Have More Service Stations

WHEN your selling machine slows down there usually is something wrong with the machine itself. Or—

There may be a shortage of power.

You can't "step on the gas" and get results unless there's fuel in the tank.

You can't sell goods unless you know what the goods are and what they will do. In other words—

When salesmanship fails to "make the grade" there's a shortage in the "knowledge tank."

Give your sales force plenty of "gas." The knowledge which you as a buyer can give.

THINK IT OVER--APPLY IT TO YOUR BUSINESS

*All Rights Reserved by Sanitary Engineer for Exclusive Publication
in the Plumbing Trade in Canada.*

New Goods of Interest to the Plumbing Trade

Donnelly Pressure Relief Valve

The firm of Ira I. Nelson, plumbing specialties, No. 10 High St., Boston, Mass., have placed on the market a safety or relief pressure valve for use on range boilers and closed plumbing sys-



tems, as well as on hot water heating plants.

They claim that the use of safety valves has been strenuously advocated since 1917, as a safeguard for the protection of life and property.

They claim that to-day there are over 50,000 Donnelly Safety Relief Valves in use in this service in homes and other buildings and that their installation is being made in ever increasing numbers.

The Donnelly Valve, they claim, by reason of its superior design, material and workmanship, is admirably adapted for this service and that it has no interior springs and no weights of any kind. It is claimed that the setting mechanism is so simple that any mechanic can easily and quickly set it for any pressure from a fraction of a pound up, which is an exclusive feature.

Stainless Steel Water Fittings

The latest adaptation of stainless steel is to the casting of metal bath and lavatory fittings. With Gummerts, Ltd., Effingham Brass Works, Rotherham, rests the distinction of being the first manufacturer of fittings in stainless steel, and their achievement has involved

a costly and protracted series of experiments. The advantages to be derived from the use of such fittings are obvious and the cost of keeping clean the numerous water taps in hotels, public baths, hospital ships, suites of offices, and public institutions will, by the use of stainless goods, be eliminated. Non-tarnishable fittings should also be specially acceptable in hospitals where precautions have to be taken against septic dangers.

It is claimed that stainless steel possesses a further advantage over brass by reason of its greater durability. With certain waters the seats of the taps perish through corrosive action, but experiments under all conditions have proved that stainless steel is not affected by such action. It is said that immersion in seawater has no deleterious influence upon taps made of cast stainless steel.

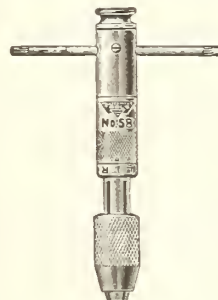
Messrs. Gummerts are at present offering only three patterns, namely, the pillar type bath cock, the globe type bath cock, and a half-inch pillar type lavatory cock. It is understood that although on account of the heavy preliminary costs involved, the range of patterns has been limited as above, it will be increased later on and further adaptations in the use of the stainless metal may be introduced, such as to lavatory legs and standards, and towel airers.

It is stated that the new goods have an attractive appearance, the polish and color being equal to those of stainless knives. They are, however, necessarily more expensive than the ordinary brass or nickel-plated taps, but it is claimed that the extra cost is inconsiderable when the saving effected in cleaning and maintenance is taken into account.

Ratchet Tap Wrench

The Millers Falls Co., of Miller Falls, Mass., U.S.A., have just placed on the market a new ratchet tap wrench which will be catalogued under No. 58.

A few of the good qualities of this



tool which are claimed by the manufacturers, are as follows:— An efficient tool for working in close quarters and

in places inaccessible with an ordinary tap wrench.

Ratchet operates by means of cam in rear of shifter sleeve. Ratchet to right or left by turning shifter ring. In center is solid for use without ratchet.

Handle is held firmly in position by set screw. Knurled knob at top affords a means of steadying the wrench while starting the tap. Ratchet and pawls of tool steel. Steel jaws hardened and tempered. Case hardened sleeve. Length of handle 3½ in. Length over all 4¼ inches. Capacity up to ¼ in. taps. Polished overall. Weight each 7 oz. Packed 1/6 doz. in a pasteboard box.



Following items are reproduced from trade paper files of MacLean Publishing Company of June and July, 1903:—

* * * * *

"Montreal Pipe Foundry Co., London-derry, N.S., successfully cast the first lot of water pipes on May 28, the cast consisting of 100 pieces."

* * * * *

"The average wages of plumbers in the United States to-day is about \$3.50 per day. In some cities the men get as high as \$5 and \$6 per day but the general average is brought down by the smaller wages paid in towns."

* * * * *

"John Watson, of Montreal, was in Toronto on his way to Hamilton to attend the annual convention of the C.O.O.F. He was taken in hand by President Mansell and his visit was fully taken up with renewing old acquaintances."

* * * * *

"The National Association made no mistake in holding its session last year in Halifax. At former conventions there were not more than one or two delegates from the Maritime provinces. Secretary Perrier reports that Halifax Association will be represented by no less than five at the forthcoming convention in Montreal."

* * * * *

"W. M. Merrick, General President United Association of Plumbers, Gas and Steam Fitters, says never in the history of the plumbing trade have plumbers enjoyed better and more prosperity than at present. The association comprises about 20,000 members. In three months ending March 31 over 100 new local unions were added to the association."

* * * * *

"W. J. Burroughes, one of Toronto's former master plumbers, is visiting friends in Toronto. He has been in England for some time. None were more active than Mr. Burroughes in the organization of the National Association, he being past vice-president of that association. Through his efforts quite a few Toronto plumbers became interested in the local association."



THAT'S SO!

"Your advertisement describes this as all wool. It is nearly all cotton."

"Yes, that's the worst of the newspapers. You can hardly believe a word they say."

* * * *

KNOW THEM TOO WELL

The president of a small college was visiting the little town that had been his former home, and had been asked to address an audience of his former neighbors. In order to assure them that his career had not caused him to put on airs, he began his address thus: "My dear friends,—I won't call you ladies and gentlemen—I know you too well to say that."

* * * *

GOT TWISTED

An Irishman being awakened suddenly in the night by a cry of fire hastily donned his trousers and leaped from a second-story window. He alighted safely on the ground, but stood looking down at his trousers, which in his excitement he had put on hindside before.

A fireman came up to him and said: "Did the fall hurt you, Pat?"

"No," said Pat, "Divil a bit did it hurt me, but it gave me a divil av a twisht."

* * * *

WHO, INDEED?

Hub (with newspaper)—Listen to this, wifey. For every missionary sent abroad last year, Christian America sent 1,495 gallons of liquor.

Wifey—Merciful heavens! Who'd ever think missionaries were such drinkers?

* * * *

NOWHERE

"No, sah, Ah don't never ride on dem things," said an old colored woman looking in on the merry-go-round. "Why, de other day I seen dat Rastus Johnson git on an' ride a dollah's worth an' den git off at the same place he started at. I says to him, 'Rastus,' I says, 'yo spent yo money, but whar yo' been?'"

* * * *

DON'T WAKE 'EM UP

"Then, when you have finished your lecture," said the professor of elocution and deportment to young Dulle, "bow gracefully, and leave the platform on tiptoe."

"Why on tiptoe?" queried Dulle.

"So as not to wake the audience," replied the professor.

* * * *

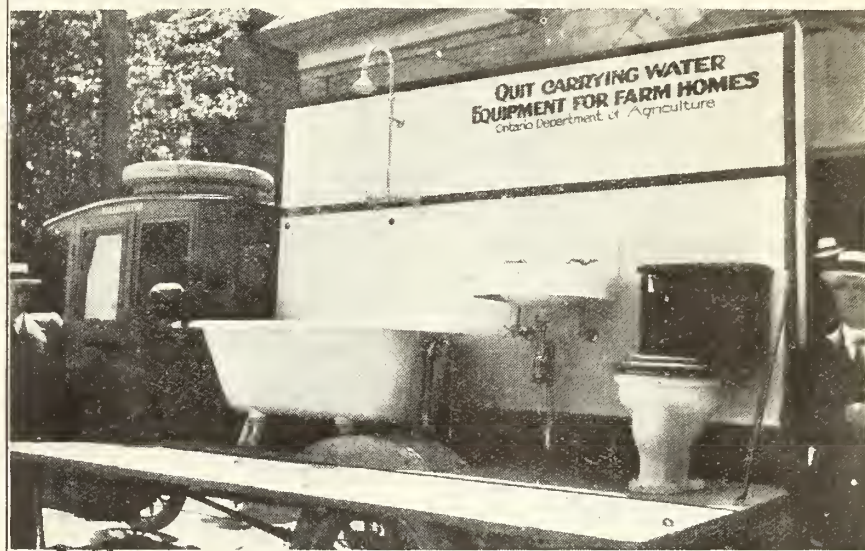
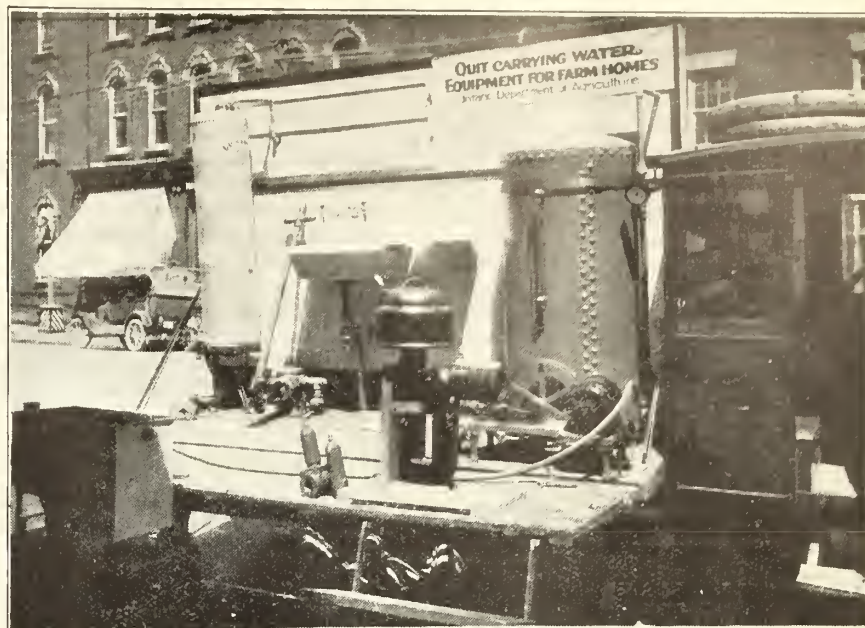
NOT FOR THE PRICE

A red-readed boy applied for a job in a butcher shop. "How much will you give me?"

"Three dollars a week; but what can you do to make yourself useful around a butcher shop?"

"Anything."

Demonstration Truck At Work



Photos taken by Sanitary Engineer of the demonstration truck being used by the Ontario Government, as it appeared while on view in one of Ontario's towns. The upper picture shows farm pressure system, pump, etc., connected up to give water at the tap and supply the range boiler. A hand and electric pump are both shown, along with a syphon-model septic tank, etc.

In the lower picture the complete bathroom installation, with basin, bath, shower, and closet, all connected up, is to be seen. Mr. Newsome, the lecturer, is seen on the right.

There has been a splendid turnout of visitors at the majority of the demonstrations and keen interest has been taken in the effort to show rural people how they can have modern sanitary conveniences.

"Well, be specific. Can you dress a chicken?"

"Not on three dollars a week," said the boy.

* * * *

A HARD ONE

"You look like an idiot," thundered the disgusted man to his swell son, just re-

turned from college. "You grow more and more like a conceited, hare-brained, helpless idiot." Just then an acquaintance of the old gentleman entered the office and saw the youth.

"Hello, Charlie, back eh!" exclaimed the visitor. "You're looking more like your father every year."

"Yes," said Charlie, "that's just what the governor's been telling me."

News Notes From Coast to Coast

BUSINESS CHANGES

Montreal.—The business of H. A. Brosseau, plumber, has been dissolved.

NEW FIRMS

Winpenny Bros., have commenced a plumbing and heating business at 1239 St. Clair Ave., Toronto.

W. C. Chaplin has commenced a tin-smithing and furnace business at 971 Eglinton Ave., Toronto.

Herschell & Dixon have commenced a plumbing and heating business at Weston, Ont., Box 292.

Port Hope, Ont.—Harry B. Hugh, tin-smithing, heating and ventilating engineer, has commenced business.

INCORPORATION

Thos. Jas. McSweeney, plumber, and James Cresman Tresidder, tinsmith, Orillia, Ont., have been incorporated.

Pipe Products, Ltd., is incorporated with head office in Toronto and capital of \$1,150,000 to manufacture steel and metal pipe of every description, plumbers' and steamfitters' supplies, etc.

LEAVES FOR WESTERN TRIP

R. J. Millar, vice-president and general manager of the Pease Foundry Co. Ltd., has left for a trip through Western Canada as far as Calgary and Edmonton, for the purpose of looking over Western conditions and of attending the annual meeting of the western shareholders of the company at Winnipeg. Mr. Millar expects to be back in Toronto about July 9 or 10.

PROVINCIAL BOARD OF HEALTH OFFICER SPOKE TO SAULT ENGINEERS

Sault Ste. Marie—F. A. Dallyn, director of the Department of Sanitary Engineering of the Provincial Board of Health, gave a talk to the local Engineering Association at a banquet at the Y. W. C. A. on "Sanitation," dealing particularly with the water supply of the city.

Mr. Dallyn stated in connection with the Sault's water supply that it had great possibilities of danger from the source of supply and from the fact that the people are wholly dependent on chlorination. He was of the opinion that the Sault should have a different source of water supply. The supply is at present taken from the power canal.

There were about 20 local engineers present. Mr. B. E. Barnhill is president of the local Association.

Doings in the Plumbing and Heating Industry

OBITUARY

Antoine A. Levesque, plumber, Montreal, is dead.

PLUMBERS ENTER PROTEST

Hamilton, Ont.—Plumbers and steamfitters employed on the Welland canal will file a protest against the nine hour day ordered by Hon. James Muddock, minister of labor, according to word which reached labor leaders here.

CONTRACTS AWARDED

Montreal.—John Tweddle & Co. have contract of \$60,484 for plumbing, heating and ventilating of new school for Protestant School Commissioners.

Parry Sound, Ont.—W. H. Ferrar has been awarded the contract for the installation of the plumbing and pumping plants at the French River Bungalow Camps being erected by the Canadian Pacific Railway.

Dominion Plumbing and Heating Co. Moves to Larger Premises

Victoria, B. C.—After several years location in business on Blanshard Street, the Dominion Plumbing and Heating Company has removed to larger quarters, the new address being 733 Fort Street. This progressive firm found its old store too small for the increased business, especially in view of the fact that the addition of a line of stoves and ranges will require a larger sales room.

The new store is not only larger in floor space, but there is a mezzanine floor adapted for storage of surplus stocks, offices, etc. The store room runs through from Fort Street to the alleyway, giving the great advantage of a rear entrance for the movement of heavy goods as well as affording a convenient place for loading that will keep the front entrance to the store clear.

The Dominion Plumbing Company includes Mr. L. Stewart, whose practical experience in this business extends over a period of thirty years; Mr. H. Cluff, a second member of the firm, with over a quarter of a century devoted to the same line; and Mr. W. Bruce, a Victoria resident for many years. All are practical workmen, and since starting business they have built up an extensive jobbing and repair trade, as they give day or night service when emergency requires.

The front section of the store will be fitted up with all the latest stocks of bathroom and sanitary fixtures.

PERSONAL

J. F. Crowley has been on a visit of inspection to plants of the Kaustine Co., in Ontario and Quebec.

FAVOR PUBLIC CONVENIENCES

Edmonds, B. C.—Public conveniences will probably be installed on the shore of Deer lake at the foot of Sperling Ave., following the action of the council in committee. A. F. Nelson, who owns property in that district and who has been letting people use his place as a bathing beach, complained of the lack of conveniences and the matter was referred to the councillors and chairman of committee on health, who will look into the matter with the engineer. The council appears to favor the installation of rest rooms.

MUELLER'S MEN AT PICNIC

Sarnia, Ont.—Mueller foremen of the Sarnia and Port Huron plants joined forces in Port Huron and held a jolly picnic to Lakeside Beach where everything that goes to make a picnic a success took place. The Sarnia foremen in autos, paraded from the Mueller plant through the downtown streets of the city to the ferry dock. Crossing the river they were joined by their co-workers from the United States and the gathering, about 150 strong, motored to the Port Huron beach. At the life saving station they were the guests of O. B. Mueller.

CANADIAN SALES-REPRESENTATIVE APPOINTED BY WILLIAMS TOOL CORPORATION

A sales representative has been appointed in Canada by the Williams Tool Corporation of Brantford.

The firm was founded in Brantford by Messrs. Hall & Sons Co., Ltd., for the purpose of making pipe threading machines of a very high type. A new sales plan too has been established, —selling pipe threading machines "On Time" to the trade. And to further make their line popular a salesmanship programme has been planned, including the engagement of J. E. Newsome, oldest son of Edwin Newsome, of Sanitary Engineer.

Mr. Newsome, junior, has had much experience, being for a number of years with the Belleville Paper Mills Ltd., Dominion Wheel and Foundry Co., Ltd., Toronto, and for some time worked in the shop where the Williams pipe threading machines are manufactured. He was one of the salesmen of the United Electric Co., Ltd., Toronto.

A Toronto office has been opened at 504 Spadina Ave.

TENDERS TO BE CALLED FOR TWO SWIMMING POOLS

Edmonton.—Tenders are being called for by the city for the construction of two new swimming pools. Council has approved this action but as yet the location of the pools has not been determined.

Whitby, Ont.—A filtration plant costing \$55,000 is being erected here. It will cover an area of 12,000 square feet, and have a holding capacity of 1,467,750 gallons per day. The filtered reservoir, when full will hold 141,000 gallons, which will supply the whole town of Whitby and the Ontario Hospital.

DOMINION RADIATOR WIN FROM STANDARD SANITARY

Joe Hurst's Dominion Radiator team of the Toronto Plumbing Supplies league defeated the Standard Sanitary club by the score of 13—4 at Willowvale Park in a league fixture before a large crowd of fans. Gillen, on the mound for the winners, allowed only four hits, but was inclined to be wild, walking four and hitting two batsmen. Davis started on the rubber for the losers, and went along fairly well until the fifth, when he weakened, and was replaced by Richards. Davis struck out six batters in the five innings he was on the rubber.

Britton, Swing, Gillen and W. Radke were the big hitters for the Radiator crew, the former having a home run.

SAYS METERS WOULD STOP WATER WASTE

Calgary, Alta.—“We are consuming here on the average 170 gallons per capita per day, whereas 85 gallons per capita is considered by authorities to be an ample supply for all purposes without restriction as to use, but with proper restrictions to misuse,” said A. B. Silcox.

“If we allow about 15 gallons per capita in addition on account of the extreme aridity of Calgary, we are apparently wasting 70 gallons per capita per day.

“There are about 10,000 water services in the city so that the waste works out at about \$17.40 per service. This leak could be stopped by the use of meters. The cost of maintaining meters is said to be between 60 and 70 cents per year per meter. It would be possible to meter one district at a time. In this way the entire burden would not fall on any one year and might be paid for out of the saving.

“It is interesting to know that Winnipeg, 100 per cent. metered, uses about 65 gallons per capita per day. Toronto and Hamilton, with comparatively low average of meters, use 120 gals. per day.

“Twenty-six cities in North America, 100 per cent. metered, use 85 gals. per day; 8 cities less than 20 per cent. metered, use 235 gals. per capita per day. \$174,000, capitalized on a 30-year six per cent. bond issue, would provide a capital of \$2,230,000.”

BIG SEWAGE SCHEME FOR WESTON

Weston, Ont.—The town of Weston is embarking on a comprehensive scheme of sewerage, and James Proctor and Redfern have been engaged as a consulting firm acting in conjunction with Mr. Seymour, the town engineer, to prepare plans and carry out the work.

The plan briefly outlined provides for putting down sewers to cover all the eastern section of the town, from the north to the south limits, including the Trethewey property, and all that portion between the Weston road and 5th Avenue. From the preliminary surveys made, the scheme will, it is thought, not be a costly one, the lay of the land being favorable to draining to the disposal plant on the banks of the Humber River.

STOPS PLUMBERS CASE GOING TO SUPREME COURT

Calgary, Alta.—Mayor George H. Webster by his casting vote blocked an attempt on the part of the Labor aldermen to take the dispute between the steamfitters' and pipefitters' union and the Imperial Oil Company before a supreme court judge.

In clause 4 of the agreement between the city and the company it is set forth that the company agrees to pay wages equal to, if not greater, than the current union wages prevalent in Calgary. In the case of the disputed wages the company takes the wages paid at Ogden for steamfitters and pipefitters as a standard, and adds seven cents to this, paying 77 cents an hour. The union argues that building contracts pay 90 cents, and that this is the union rate.



F. J. DERRICK

Plumber of 248 Cedarvale Avenue, Toronto, Secretary of the York Township Master Plumbers' Association, who has done much good work throughout the winter and spring sessions.

INCREASE IN PETERBORO PERMITS FOR PLUMBING IN MAY

Plumbing permits issued in May numbered 43, as compared with 31 in April. During the month there were 16 outdoor closets done away with, bringing the total for the year up to 47, according to A. G. Methers, city plumbing inspector.

The May permits included 29 water closets, 20 baths, 25 basins, 28 sinks, 4 laundry tubs, 2 combination trays, 1 soda fountain, 7 floor drains and 1 drinking fountain. The drinking fountain is being installed in Victoria Park.

Inspections to the number of 119 were made, including 33 water tests, 32 smoke tests, 11 layouts and 43 miscellaneous. On satisfactory completion of the work permitted, 68 certificates were issued.

WESTERN ONTARIO NEWS

Contract for heating and plumbing for new \$8,500 residence at London, Ont., has been awarded to the Hunt Plumbing Co.

Tenders will be called early in July for new six-roomed school at Hanover, Ont. Prices will be wanted on steam heating system, plumbing and ventilating equipment. Architect W. G. Murray, Dominion Savings Building, London, Ont., is preparing plans.

A. D. Cameron, secretary of the High School Board at Mitchell, Ont., will receive tenders until July 14 for new \$60,000 high school. Steam heating, plumbing and ventilating equipment required.

W. Bere, 458 Piccadilly St., London, Ont., wants prices on hot water heating and plumbing for new duplex dwelling.

H. Peel, 139 St. James St., London, Ont., wants prices on hot water heating, plumbing, and electrical work, for new \$14,000 dwelling.

Contract for new steam heating system for the Court House at Goderich, Ont., has been awarded to Fred Hunt.

Watt and Blackwell, Bank of Toronto Building, London, Ont., are calling for tenders for new hospital to cost \$440,000 at Kitchener, Ont. Prices wanted on steam heating, plumbing and electrical equipment.

Noble and Rich, 237 Queens Ave., London, Ont., have been awarded the plumbing contract for new \$175,000 manufacturers' exhibition building at the Western Fair grounds.

Eggett & Co., London, Ont., have been awarded contract for heating in connection with alterations costing \$35,000 at the Byron Sanatorium.

Noble and Rich, London, Ont., have been awarded contract for plumbing and heating for new \$10,000 residence for Wm Abbott.

F. R. Reeves, 261 South Broad St., Sarnia, Ont., wants prices on steam heating and plumbing for new \$30,000 Sunday school to be erected by the Anglican congregation.

Harrison and Phillip, of Welland, Ont., have been awarded contract for new heating system for the West Side school at Humberstone, Ont.

Market Conditions and Tendencies

Price Trend on Sanitary and Heating Supplies

Markets at a Glance

STEADY improvement is noted in business during the past two weeks. Though the difference in the volume of business is small, and in some centers, is hardly noticeable from last week, the trend is generally, in most centres, a noticeable movement towards a greater volume of business, and an improvement in conditions.

Primary metal markets are showing signs of weakness of late; brass and copper scrap materials have declined to lower levels, and ingot metals have all weakened with the exception of antimony, which not only remains at its former price level but gives out a firm note. Montreal markets re-

port that copper, tin, lead, spelter and aluminum have declined in that center. Toronto markets have so far only felt this decline on tin and spelter.

Collections generally are a little on the side of improvement; overdue accounts in some centres are becoming easier to collect.

Taking the market all round, very few changes have occurred of late and fluctuations have been few in either direction. This will not be the case for long if the weakness continues in primary markets, as lower prices will soon manifest themselves in connection with manufactured articles.

Montreal Markets

MONTREAL, June 29.—The weakening tendency of the primary metal markets which continues this week without much indication as yet as to when the bottom will be reached has had a decided effect upon all manufactured products. Few price changes are being noted, higher quotations being out of order under the circumstances and lower prices not being advisable until it is seen whether or not there will be a recovery in the primary markets.

The only change of any importance to be recorded this week is a discount change on conductor sundries, the discount being reduced slightly, those on conductors remaining without change. In closet goods a local price readjustment on the Pussyfoot closet is also noted.

The scrap market reflects the tone of primary markets by a reduction in the prices on copper and brass, these reductions being on a very small scale as yet, though likely to be continued further if present conditions continue for any considerable period.

RADIATION GOODS MARKET IS QUIET LOCALLY

Montreal.

A quiet tone continues to rule in the radiation goods market locally. The following prices, which are unchanged, remain in force:

RADIATORS AND BOILERS—

Radiator list prices are for 1, 2, 3, 4 and 5 column radiators, per sq. ft.

45 in. to 38 in., \$1.32 in. \$1.10; 30 in., \$1.15; 25 in., \$1.20; 23 in., \$1.25; 22 in., \$1.30; 20 in., \$1.36; 18 in., \$1.40; 16 in., \$1.50; 14 in., \$1.55; 13 in., \$1.60. Discount 44 per cent for hot water, and 45 per cent. for steam.

Wall radiators—5 ft., \$1.15; 6 ft., \$1.10; 7 ft., \$1.05; 9 ft., \$1.05; 12 ft., \$1.05; Discount 41 per cent.

Boilers—Round t water boilers, sizes from 0 to 10, 52 per cent. off list. Square or sectional hot water or steam boilers, 15 in., 3 per cent. with Ontario Government trimmings, list. Square or sectional water boilers, 19 in. to 36 in., 5 per cent. Square or sectional steam boilers, 19 in. to 26 in., 5 per cent. Ontario Government trimmings, list plus 7 per cent. Square or sectional water or steam boilers, 48 in., list plus 10 per cent. With Ontario Government trimmings, list plus 18 per cent.

Round steam boilers, standard trimmings, 16 per cent. Ontario Government trimmings, 13 per cent.

C.B. Montreal, Toronto, Guelph.

TRADING IN COMPRESSION GOODS IS FAIRLY STRONG

Montreal.

Business in compression goods remains fairly steady of late, a good amount of trading being handled by the local distributors throughout. Quotations have shown no signs of change from the levels established some little time ago, these being as follows:

VALVES AND BIBBS—

Compression work, standard	45%
Fuller work, standard	30%
Quick opening, compression bibbs	43%
Bath cocks, quick opening	38%
Bath cocks, compression	40%
Basin cocks, quick opening	46%
Flatway stop and waste cocks, standard	54%
Roundway stop and waste cocks, std.	42%
Brass steam cocks, standard, 1/4 in.	50%
Radiator valves, standard	55/25%
Do., removable discs	55/25%
Globe, angle and check valves, std.	25%
Gate or straightway	25%
Emco globe valves	33%
Emco check valves	33%
Jenkins globe, angle, check and swing check	plus 15%
Jenkins gate or straightway	plus 11%
Jenkins iron body, globe and angle	plus 10%
Jenkins iron body, gate	12%
N. P. "O" and "S" traps	34%

MINOR PRICE ADJUSTMENT ON PUSSYFOOT CLOSETS

Montreal.

Only one price change is reported in closet goods this week, the price of the oak vitro or Pussyfoot closet being reduced fifty cents. Trading locally is not as heavy as had been anticipated. Prices now in force are as follows:

CLOSET COMBINATIONS—

Low Down Outfits,	each
Closet, standard outfit, oak	24 00
Do., post hinge seat	25 00
Do., oak vitro or Pussyfoot	24 00
Do., post hinge seat	25 50
Do., mahogany vitro or Pussyfoot, post hinge seat and cover	28 00
Do., vitreous china, oak post hinge seat and cover	29 00
Do., vitreous china, mahogany post hinge seat and cover	30 00
Do., white vitro or Pussyfoot, mahogany post hinge seat and cover	30 00
Do., enamelled iron tank, oak post hinge seat and cover	29 50
Do., enamelled iron tank, mahogany post hinge seat and cover	29 50
Add for 3/4" valve on supply pipe	1 25
Add for spud	0 60
Add for reverse trap bowl	1 50
Add for syphon jet bowl	7 00
Deduct for supply pipe	0 80
Deduct for floor hinge	0 60

CLOSET BOWLS—

Richeieu bowl	8 00
Washdown bowl with spud	9 50
Reverse trap bowl with spud	9 50
Syphon jet bowl with spud	15 00

CLOSET SEATS—

Oak post hinge seat and cover	3 85
Oak wood strip seat and cover	3 50
Mahogany finish post hinge seat and cover	4 05

CLOSET TANKS—

Low down, oak vitro or Pussyfoot with fittings less seat	12 00
White vitro or Pussyfoot with fittings, flush elbow and supply	16 50
Vitreous china tank with fittings, flush elbow and supply	16 00
Enamelled iron with fittings, flush elbow and supply	16 00

CONDUCTOR SUNDRIES UNDERGO DISCOUNT REVISION

Montreal.

Local distributors of eaves and conductors report business to be fairly strong. Price adjustments have been noted on a number of conductor sundries



Makes Sales— Makes Friends

MUELLER A-2280 Combination Sink Faucet appeals instantly to every woman—unnecessary to urge its strong points—they show at a glance—that's why it sells quickly and easily. Its many convenient uses makes a friend and a prospective future customer.

Mueller Combination Sink Faucet A-2280

(Gives water in any part of sink
—not confined to certain radius)

Lessens dishwashing drudgery—sprays flowers—cleans vegetables—fills pails on the floor—cleans the sink—and saves the woman's hands.

Raising or depressing the center knob gives hot, cold or tempered water through spout or spray.

Rapidac construction—cone seat washer—3 feet of good red corrugated hose—a high grade **MUELLER** product at a reasonable selling price netting you a good profit.

Order a sample today. Fully warranted.

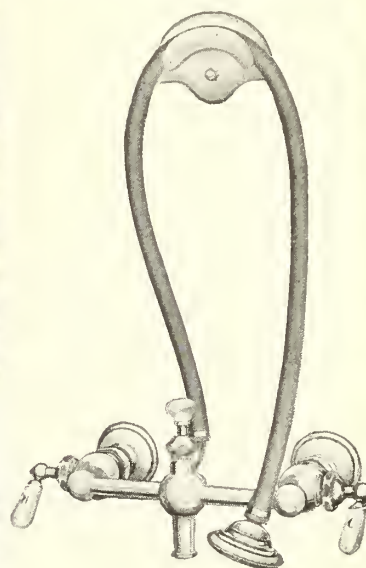
H. MUELLER MFG. CO., LIMITED
Sarnia, Ontario

Water, Plumbing and Gas Brass Goods and Tools

American Factory at Decatur, Illinois, U. S. A.
Branches, New York and San Francisco

Mueller Metals Co., Port Huron, Mich., Makers of "Red Tip" Brass Rod; Welding Rod; Brass and Copper Tubing; Forgings and Castings in Brass and Bronze; also Brass Screw Machined Products.

This **MUELLER** Faucet makes it easy to wash the dishes, without making the hands red and rough.



No. A-2280 (Patented)
can be quickly installed on any regulation sink, and will last a lifetime.

but discounts on the major items remain unchanged. The new discount on sundries is 50 and 10 per cent. Quotations in force locally are as follows:

EAVESTROUGH—

O. G. round and half round, per 100 ft. 3 in., \$16.90; 10 in., \$18.70; 12 in., \$22.20; 15 in., \$35.50; 18 in., \$45.00.

O. G. Square bead, per 100 ft.; 8 in., \$15.90; 10 in., \$17.70; 12 in., \$21.20; 15 in., \$34.50; 18 in., \$44.00.

Discount 65 and 5 per cent.

CONDUCTOR PIPE—Round, Plain and Corrugated, per 100 ft.; 2 in., \$18.40; 3 in., \$22.30; 4 in., \$29.60; 5 in., \$48.00; 6 in., \$58.80.

Discount 15 and 5 per cent.

CONDUCTOR ELBOWS—

Plain or corrugated, price per doz. 2 in., \$5.25; 3 in., \$6.00; 4 in., \$10.50; 5 in., \$24.00; 6 in., \$29.00.

Discount 50 and 10 per cent.

ENAMELLED WARE TRADING STILL REPORTED LIGHT

Montreal.

Sales of enamelled ware are reported rather light this week, although indications are for a revival of trading interest shortly in view of the heavy amount of building under construction in the district. Local quotations are:

ENAMELED WARE—

Sinks, flat rim—	1 only	2 only	3 only
16 x 24	\$ 7 50	\$ 7 40	\$ 7 30
18 x 30	8 70	8 60	8 50
20 x 30	9 90	9 80	9 70
Bath tubs, roll rim, 4, 4½, 5 feet, 24 to 30 in. wide			51 40
Bath tubs, 5½ feet.			57 10
Lavatories—			
17x19 in. Apron F139 or P4045			15 30
18x24 in. Apron F154 or P3845 or P3847			23 60
18x21 in. Apron F169 or P4205			17 60
17x19 in. Roll rim. F241 or P4345			12 60
Less 30 per cent.			

NO CHANGES NOTED IN PRICE ON WROUGHT IRON PIPE

Montreal.

Lapweld and butt weld wrought iron pipe prices are still based on list No. 59, issued some weeks ago, as follows:

WROUGHT PIPE

Price List No. 59. April 24th, 1923.

Standard Butt weld Pipe S/C per 100 feet.

Size	Steel Blk.	Gen. Galv.	Wrot. Blk.	Iron Galv.
1¼ in.	6.00	8.00		
1½ in.	4.32	6.30	7.56	9.60
2 in.	4.32	6.30	7.56	9.60
2½ in.	5.53	6.97	7.82	9.35
3 in.	6.79	8.40	9.55	11.27
3½ in.	9.69	12.07	13.77	16.32
4 in.	13.11	16.33	18.63	22.08
4½ in.	15.68	19.53	22.28	26.40
5 in.	21.09	26.27	29.97	35.52
5½ in.	33.35	41.54		
6 in.	43.61	54.32		
6½ in.	56.12	69.00		
7 in.	66.49	81.75		

Standard Lapweld Pipe S/C per 100 ft.

Size	Steel Blk.	Gen. Galv.	Wrot. Blk.	Iron Galv.
2 in.	24.42	29.60	33.30	38.85
2½ in.	36.27	44.46	50.31	59.09
3 in.	47.43	58.14	65.79	77.27
3½ in.	57.04	69.92	79.12	92.92
4 in.	67.58	82.84	93.74	110.09
4½ in.			foot	foot
5 in.			1.14	1.33
			1.33	1.55
6 in.			1.19	1.46
7 in.			1.55	1.90
8 in.			1.63	2.00
9 in.			1.87	2.30
10 in.			2.23	2.83
11 in.			2.14	2.52
12 in.			2.76	3.38

WEAKNESS IS NOTED IN BRASS AND COPPER PRODUCTS

Montreal.

A weakness is again noted in the brass and copper markets locally this week. Quotations, however, have not yet shown a reflection of this tendency of

the market, remaining unchanged from levels which have been in force for several weeks past. Trading is very light in these products at the present time. Quotations are:

BRASS—

Sheets, base 0 27
Rods, ½ to 2 inches, round..... 0 24
Tubing, seamless, base 0 32

COPPER—

Rods, ½ to 2 inch..... 0 30
Soft sheets, plain, 16 oz. and heavier, lb. 0 33
Plain tinned, 16 oz. and heavier, lb. 0 40
Polished, and tinned, 16 oz. and heavier, lb. 0 44
Tubing, lb. 0 34

Above prices are for full sheets or bars. Cuts 5c. per lb. higher.

SUMMER DEPRESSION IS NOTED IN SHEETS AND PLATES

Montreal.

The sheet and plate market locally, is feeling the depressing effects of the summer season. No deviation from prices in force are noted, the following take in the range of the local distributors:

BLACK SHEETS—

10 gauge, base	4 75	5 00
12 gauge	4 85	5 00
14 gauge	4 85	5 10
16 gauge	5 05	5 15
18—20 gauge	5 20	5 25
22—24 gauge	5 20	5 35
26 gauge	5 25	5 40
28 gauge	5 35	5 60

GALVANIZED SHEETS—

	Queen's Head	Fleur de Lis
18-20 gauge	6 90 7 40	6 65 7 15
22 gauge	7 15 7 65	6 90 7 40
24 gauge	7 25 7 75	7 00 7 50
26 gauge	7 50 8 00	7 25 7 75
28 gauge	7 75 8 25	7 50 8 00

Other Brands—

10½ oz.	7 50	7 75
28 U. S. gauge	7 20	7 50
26 U. S. gauge	6 55	7 10
24-22 gauge	6 60	6 85
20-18 gauge	6 40	6 50
16 gauge	6 25	6 35

Above prices are for ½ ton lots in English iron and 1000 lb. lots in American iron with an extra charge of 25c. for less quantities. Extra for sheets 3 ft. wide, 28 gauge and 10½ oz., 25c. per 100 lbs.

Further extra for sheets 4 ft. wide according to gauge.

TIN PLATE—

20 x 28 x 100 lbs. basis	15 50
20 x 28 IC. 112s	16 00
20 x 28 IX. 112s	18 00
20 x 28 IXX. 56s	11 00
20 x 28 IXXX. 56s	12 00

TERNE PLATE—

20 x 28 IC. 112s, 200 lb.	14 50
20 x 28 IC. 112s, 214 lb.	15 00

CANADA PLATE—

Half bright 52s	5 50
Half bright 60s	5 60
Blue 52s	5 90
Blue 60s	6 00
Welsh, polished, 60s	7 35
Welsh, polished, 52s	7 10
Galvanized, 52s	8 00
Galvanized 60s	8 50

METAL LATH DISTRIBUTORS REPORT HEAVY SALES

Montreal.

Metal lath distributors report heavy sales during the past week or so, and are highly optimistic over the prospects of the season as a whole. Prices remain as follows:

METAL LATH—

	per sq. yd.
Painted—	
26 gauge	23c.
24 gauge	28c.
32 gauge	32c.
Galvanized, 10c. per sq. yd. extra.	

SOIL PIPE AND FITTINGS IN FAIRLY FIRM MARKET

Montreal.

There has been no change in the discount list on soil pipe and fittings during the past week, the revision made in April still holding good. Trading is re-

ported as being fairly steady. Discount lists are as follows:

SOIL PIPE—

2 and 3 inch	20%
4 inch	25%
5 and 6 inch	20%
8 inch	net

FITTINGS—

2 to 6 inch	37½%
8 inch	net

FIRM MARKET IS MAINTAINED FOR COTTON WASTES

Montreal.

The cotton waste market remains in a firm position locally. Quotations show no tendency to deviate from levels established early in the spring, as follows:

COTTON WASTES—	Per lb.
Cream polishing	0 24
White, XXX extra	0 20
White, XX grand	0 18½
White, XLCR	0 17
X Empire	0 15½
X Press	0 14
Colored—	
Fancy	0 15½
Lion	0 14
Standard	0 12½
Popular	0 10½
Keen	0 08½
Wool Packing—	
Arrow	0 25
Axle	0 21
Anvil	0 17
Dominion Wipers—	
White cotton	0 20
Colored cotton	0 13½
F.o.b. Toronto and Montreal.	

IRON AND STEEL PRODUCTS ARE WITHOUT CHANGE

Montreal.

Bar products remain in a firm market, with prices showing no change. The quotations are as follows:

IRON AND STEEL—

Common bar iron, 100 lbs.	3 95
Refined iron	5 45
Irish finish machinery steel	4 00
Mild steel	3 95
Single reeled machinery steel	5 50
Band steel	3 95
Sleigh shoe steel	3 95
Spring steel	5 00
Tire steel	4 15
Harrow tooth steel	3 80
Toe caulk steel	4 85
Mining tool steel, per lb.	0 19
Black Diamond tool and cast steel, per lb.	0 19

NOTE—Refined iron is approximately \$1.50 per cwt. over base, but fluctuates owing to unsettled market.

Band steel in scroll bundles, 50c per 100 lbs. extra.

Iron and steel 3-16 in. and thinner, 50c per 100 lbs. extra.

FIRM TONE IS MAINTAINED IN PIPE FITTINGS MARKET

Montreal.

The local pipe fittings market maintains a firm tone at present, although activity is not so strong as distributors would like to see it. Prices are without change, as follows:

PIPE FITTINGS—

Cast iron fittings	10%
Plugs, cast iron	10%
Do., solid	10%
Do., countersunk	10+
Bushings, cast	15+
Do., malleable	15+
Unions	30%
Flanged unions	10%
Flanged fittings	27½%
Dart unions, black, ½ to 2 in.	331-3%
Do., ½ in., 2½ in., and larger	23%
Do., galv. add to black	30%
Nipples, ½ to 4", close and short	50%
Do., long	55%
Do., 4½ to 8", close and short	40%
Do., long	45%
Complings 4" and under	25%
Do., 4½" and larger	50%

Malleable Fittings—

Price list effective June 1st, 1922. Discount 63 per cent.

Sanitary Engineer

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SANITARY ENGINEER is the only plumbing and heating paper in Canada giving an up-to-date market service in each issue, from Montreal, Toronto and Winnipeg.

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CORRUGATED SHEET MARKET IS SHOWING GOOD STRENGTH

Montreal.

Seasonable business is reported in the corrugated sheet market by local distributors, sales being very strong for this time of the year. Prices are without change, as follows:

CORRUGATED SHEETS—	Per 100 sq. ft.
No. 28 gauge	7 00
No. 25 gauge	7 50
No. 24 gauge	10 00
No. 22 gauge	12 50
No. 20 gauge	14 00
No. 18 gauge	19 00

Less 10 per cent.

Lighter than 24 gauge and wider than 27 ins., 75 cents per square extra.

BUILDING ACTIVITY AIDS SALES OF PORTLAND CEMENT

Montreal.

The season's heavy building programme, now well under way, is resulting in a strong trade in cement. Prices remain at the following levels:

CEMENT—

Car load lots, per bag, F.o.b. steam cars	0 85
Per Bag, delivered	0 94
Less car lots per bag, F.o.b. yard.....	0 94
Per bag, delivered	1 04
Rebate of 20 cents for empty bags.	

BRASS AND COPPER SCRAPS IN FRACTIONAL DECLINE

Montreal.

The scrap metal market continues to show a weakening tendency, brass and copper declining fractionally during the past week. A somewhat duller market is reported by local dealers. Quotations are as follows:

SCRAP—

Automobile Tires	0 50
Rubber Shoes	0 02
Yellow brass	0 07
Red brass	0 09
Light brass	0 04½
Scrap zinc	0 05
Lead, heavy	0 05
Lead, tea	0 03
Light copper	0 10
Heavy copper	0 11½
Wrought iron, R. Rd. No. 1 per gr. ton	15 00
Malleable scrap (ton)	14 00
Pipe scrap (ton)	10 50
Heavy melting steel	12 00
No. 2 bushing	6 00
Boiler plate	14 00
No. 1 machinery	21 00

PRICES ARE SLIGHTLY LOWER IN INGOT METAL MARKET

Montreal.

There is no improvement to report in the ingot metal market, and prices are generally slightly lower than those ruling last week. In view of the continued decline it is impossible to form any idea as to when the bottom will be reached, but there is no sign as yet of any change for the better. The position is somewhat obscure but present indications point to still lower levels being touched.

TIN.—This metal continues to decline and the recoveries are very brief and followed immediately by a further drop. It is probable that the June statistics will not be very favorable, and in the absence of any support to the market, the trend is all downward. From present indications the market may go another £10 or £20 lower. The local market is weak at 45½ cents per pound.

COPPER.—Both New York and London are again lower, although the decline is moderate and there is no marked weakness. There are no features of

particular importance beyond the light demand and a certain weakness in London which tends to depress prices. The local market is quiet at 19 cents for electro, and 18½ cents for casting.

LEAD.—This metal is slightly lower in all markets but the decline is gradual and will doubtless continue so until the bottom is reached.

SPELTER.—East St. Louis shows a further low point of \$5.75, but shows a light resistance at this level. With export business out of the question, the future depends on domestic consumption which is still rather light. Production is bound to fall off, which will in time

have its effect upon prices. The European situation is apparently the crux to the situation, and there is no improvement there. The local market is quiet at 9 cents per pound.

ANTIMONY.—This metal is the only one to show a firmer tone this week, with offerings from China one-quarter to one-half a cent per pound higher than recent quotations. Beyond the sentimental effect this has no bearing on local prices, which remain steady at 8¾ cents for high-grade English and 8 cents for Chinese.

ALUMINUM.—This metal remains unchanged at 24 cents per pound on the local market.

Toronto Markets

TORONTO, June 28.—Primary metal markets during the past two weeks have again seen declines of some importance in tin and spelter. A weak note is given out in connection with all other ingot metals except spelter, which still holds a very firm tone. The scrap metal market has a tendency towards weakness though no changes have yet been made. Solder has been reduced approximately 10 per cent, which affects all grades. A few adjustments have been made in the prices of closet combinations which do not amount to a great deal.

Local dealers, both wholesale and retail, report a fair week's business in most lines of plumbing and steamfitting goods. A slight improvement is being felt in the business of the last two weeks, over the two previous weeks.

SCRAP MATERIAL MARKET TURNS VERY WEAK

Toronto.

The scrap material market shows a very weak tendency; prices have fallen off in practically every line. Dealers report a very dull market with very little material moving.

SCRAP MATERIALS— f.o.b. Toronto

Gross Tons—	
Scrap Iron	
Heavy melting steel	14 00
Scrap pipe	10 00
Steel turnings	13 50
Malleable scrap	16 00
Rails, scrap	14 00
Net tons—	
No. 1 cast	20 00
Stove plate	16 00
Car wheel (std)	16 00

Scrap Metals	
Heavy copper wire	12 00
Light copper	9 00
No. 1 composition	9 00
Red brass turnings	8 00
Light brass	4 50
Heavy yellow brass	7 00
Heavy lead	5 00
Tea lead	3 00
Scrap zinc	4 75
Aluminum sheet and clippings	14 00
Hard lead	4 25

Scrap Rubber	
Boots and shoes	2 00
High rubber boots	2 00
Auto tires	0 50
Solid tires	0 25
Inner tubes, mixed	2 50
Peelings, mixed	0 75

ADJUSTMENT MADE IN PIPE FITTINGS

Toronto.

Dart unions, drainage fittings and C.I. stop cocks have been added to regular cast and malleable pipe fittings list, which is given herewith.

Discount on mal. unions, ells and tees is 50 per cent. off list, and on wrought

couplings, 4½-in. dia. and up, it is 5 per cent. off.

PIPE FITTINGS—Cast Iron—

Elbows, tees, etc., standard sizes.....	10%
Plugs, solid, countersunk and std.....	10%
Bushings	15%
Flanged unions	17½%
Flanged fittings	20%

MALLEABLE FITTINGS—

Bushings	15%
Hex. nipples, R. & L.....	25%
Steam cock wrenches	30%
Union ells and tees.....	40%
Boiler fittings (old style).....	32½%
Do., (new style)	27½%
Lip unions, all sizes.....	30%
Dart unions, blk. up to 2".....	27½%
Dart Unions, blk. 1½" also 2½" and over	10 and 10½
Ringhangers	30%
Wrought nipples to 4" close & short....	45%
Do., 4½" and up	5%
Malleable fittings, sold from price list, less 63%	
Drainage fittings, black.....	22½%
Do., galvanized	27½%
C. I. Stop cocks, up to 4".....	25%
C. I. Stop cocks, up to 4" with brass plug	15%

ASBESTOS MARKETS ARE QUIET WITH LITTLE MOVING

Toronto

Asbestos products have not been selling in the volume expected. The market is inclined to be dull. Notwithstanding the fact that this has been the case for some time past, prices show no indications to decline. Magnesia products give out a very firm note, and some scarcity exists in this line.

ASBESTOS PRODUCTS—

Pipe Covering—	
Air cell, 4 ply	50 per cent. off list.
Air cell, 3 ply	55 per cent. off list.
Air cell, 2 ply	57½ per cent. off list.
Boiler Covering	\$1.50 — \$2.00 per bag.
Asbestos paper or felt.....	8.25 \$9.00
Magnesia pipe covering	less 40 per cent.
Magnesia pipe covering, small lots, less 35 per cent.	

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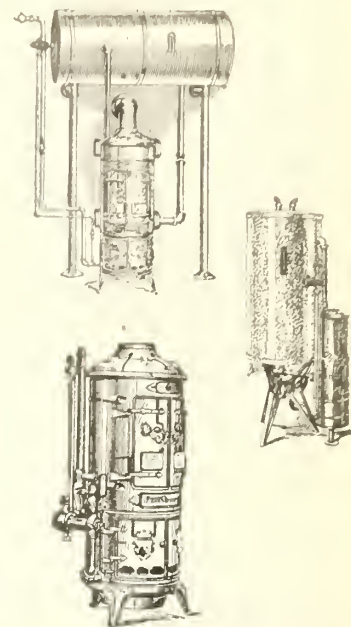
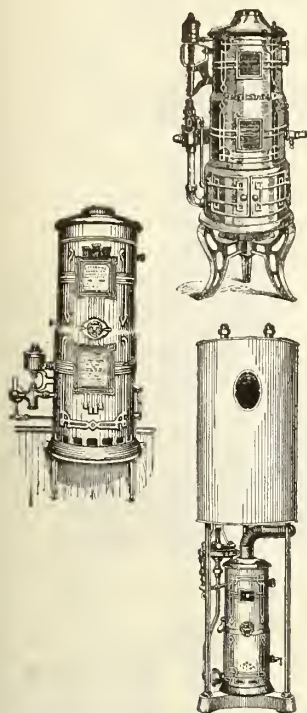
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"If it's done with heat, you can do it BETTER with gas"

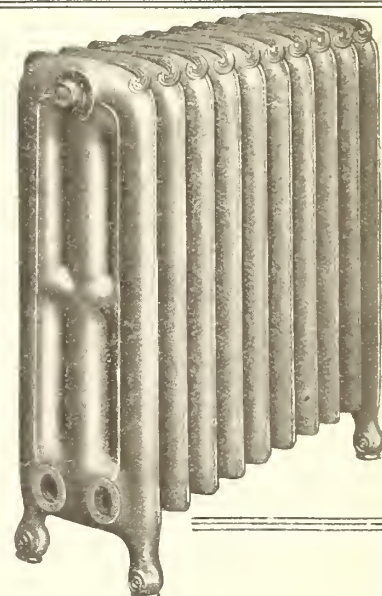
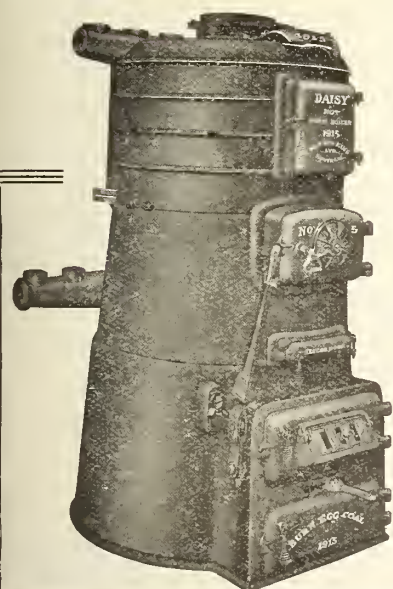


It Pays to Concentrate on Daisy Boilers

No sales appeal equals, nor even approaches the effectiveness of a strong testimonial from an actual user of the article being offered for sale. A recommendation from a man who has had such an article for a long time—who knows just what it will do and has done over a period of strenuous service.

Over 60,000 Daisy Hot Water Boilers are now giving perfect satisfaction in homes in every province of the Dominion.

It pays to concentrate on "Daisy" Boilers and "Viking" Radiators.



Warden King Limited

MONTREAL

Branch Office: 136 Simcoe Street, TORONTO, Ont.

BRASS GOODS AND LAVATORY FITTINGS

Toronto.

Fair sales are recorded in these lines, only one price change having occurred in lavatory fittings in the form of an advance from \$1.80 to \$2.05 for 3/4-inch galv'd. nickel plated supplies.

See price list herewith.

BRASS GOODS—

No. 3825 Compression, complete with tails	3 75
No. 4 Std. Comp. Double Bath. No. 3829 F	4 46
Ditto with China Index, No. 3830F	4 92
Quick Opening—	
Brass handle on top, No. 3850 F	4 90
China handle on top, No. 3850 F	5 52
Quatern Top China Hdle. A3200	5 52
Brass handle on side, No. 3851F	4 95
(less Jewell's cup)	
China handle on side No. 3852 F	5 45
(less Jewell's cup)	
Quatern Side China Hdle. A3500	5 45
No. 4 1/4 Fuller, brass handle, No. 3862	6 48
A2395 Mueller type Shower Faucet	9 25
3/4 in. N. P. Brass Supply Pipes	2 20
1/2 in. N. P. Brass Supply Pipes	2 30
1/2 in. Galvanized Iron Nickel Plated Supply Pipes	1 75
1 1/4 or 1 3/4 Overflow and Waste, 19 gauge, N. P. on rough	3 20
1 1/2 T.B.L. Overflow and Waste, 19 gauge, N. P. on the rough	4 15

LAVATORY FITTINGS—

Riley Basin Cocks China Index, per pair	7 00
Riley Jr. Basin Cocks, China Index, per pair	6 00
Adanac Basin Cocks, Brass Handle, No. 3632, per pair	4 68
Adanac Basin Cocks, China Handle, No. 3635, per pair	5 20
Quatern Side China, Hdle. A2000	5 20
Quick Opening Basin Cocks, Brass Hdle. No. 3630, per pair	3 70
Quick Opening Basin Cocks, China Handle, No. 3633, per pair	4 28
Quatern Top China Hdle. A1900	4 28
Fuller No. 0 Basin Cocks, Brass Handle, No. 3650, per pair	4 10
Fuller No. 0 Basin Cocks, China Handle No. 3651, per pair	5 04
Midget No. 0 Basin Cocks, No. Index, No. 3623 per pair	3 14
Midget No. 0 Basin Cocks, With Index. No. 3623, per pair	3 45
3/4 in. N.P. Brass supplies to wall or floor	2 20
3/4 in. Galv'd. supplies N. P.	2 05
1 1/4 in. N.P.S. Traps to floor No Vent 20G No. 4458	3 46
1 1/4 in. N.P.S. Traps to floor with Vent 20G No. 4462	4 53
1 1/4 in. N.P.P. Traps, No Vent 20G No. 4450	2 74
1 1/4 in. N.P.P. Traps No Vent Toronto By-law No. 4450	2 97
1 1/4 in. N.P.S. Traps with Vent Toronto By-law No. 4462	4 98
1 1/2 in. N.P.S. Traps with Vent Toronto By-law No. 4462	6 67
2 in. N.P.S. Traps with Vent Toronto By-law No. 4462	14 00
Patent Overflow basin plugs	0 71
Pop up waste	5 00
Unique waste China Knob	5 50
Unique waste China Index	5 00
1 1/4 in. Deep Seal Trap No Vent	3 75
1 1/2 in. Deep Seal Trap No Vent	6 00
1 1/4 in. Elliptic Trap	6 50
1 1/2 in. Elliptic Trap	9 00
Whirlpool N.P. Traps list prices less	15%
1/2 in. Lever Handle, Stop and Waste, solid key, No. 3969	0 83
1/2 in. Lever Handle, Stop and Waste, pin check, lose key, No. 4032	1 04
1/2 in. Lever Handle, Stop and Waste, pat. cap, loose key, No. 4044	1 21
1/2 in. Boiler Drain Cocks 3571	0 80

QUIET TONE NOTED ON BOILER STANDS

Toronto.

No great volume of business has taken place in boiler stands, prices are the same as previously published in Sanitary Engineer.

BOILER STANDS—

Each—5 gal. \$1.50; 12 gal. \$1.50; 18 gal. \$1.50; 25 gal. \$1.50; 30 gal. \$1.50; 35 gal. \$1.75; 40 gal. \$1.90; 52 gal. \$2.10; 66 gal. \$2.25; 82 gal. \$2.50; 100 gal. \$3.80; 120 gal. \$4.00; 144 gal. \$4.00; 168 gal. \$4.00; 192 gal. \$4.00; Adjustable Stands 12 to 14 inch 60c. Stahl boiler stand, 70c.

PRICES ON CLOSET COMBINATIONS ARE ADJUSTED

Toronto.

Wash down bowl which was \$10.60 is now \$10.00. Reverse trap bowl which was selling at \$12.10 has been advanced to \$14.00 each, and siphon jet bowl which was \$17.00 is now listed at \$18.75 each. The price of the Richelieu bowl remains unchanged.

The white enamel closet tank (low down) No. F585 or P9262, or white vitreous china Belmeade tank with bend and supply fittings which was selling at \$18.00 to \$18.90 has advanced in price to \$19.25.

Closet seats, mahogany finish, post hinge with cover, have been reduced from \$4.75 to \$4.05.

Addition of \$2.25 if closet combination is supplied with B.O.T. reverse trap bowl has been changed to \$1.50 and if supplied less N.P. supply pipe deduct 60 cents instead of 70 cents.

CLOSET COMBINATIONS—

	Each
Oak, Wood Tank, Oak W. S. Seat and Cover	24 00
Oak Vitro Tank, Oak W.S. Seat and Cover	24 90
Oak Pussyfoot Tank, Oak W.S. Seat and Cover	24 00
Oak Wood Tank Oak P.H. Seat and Cover	24 50
Oak Vitro Tank, Oak P.H. Seat and Cover	24 50
White Vitro Oak Woodstrip Seat and Cover	25 50
White, Pussyfoot Oak Woodstrip, Seat and Cover	25 50
White Vitro Tank, Mahog., P.H. Seat and Cover	26 50
White Pussyfoot, Mahog., P.H. Seat and Cover	26 50
White Vitro or Pussyfoot, oak, P.H. Seat and Cover	26 00
Mahog. Pussyfoot, Mahogany P.H., Seat and Cover	27 00
Vitreous China Tank, Oak P.H., Seat and Cover	30 75
Enam. Iron Tank, Oak P.H. Seat and Cover	28 75
Vitreous China Tank, Mahog., P.H. Seat and Cover	31 00
Enam. Iron Tank, Mahog., P.H., Seat and Cover	29 00

ADDITIONS OR REDUCTIONS ON ABOVE—

If supplied less bend or offset, deduct	0 50
If supplied with reverse trap bowl, add	1 50
If supplied with BOT Reverse Trap bowl Add	1 50
If supplied with plain syphon jet bowl Add	7 00
If supplied with N.P. stock cock on supply Pipe, Add	1 50
If supplied less brass and rubber floor flange and bolts, Deduct	0 60
If supplied less bend or offset, deduct	0 50
If supplied less N. P. supply pipe deduct	0 60

CLOSET BOWLS—

Washdown bowl	10 00
Reverse trap bowl	14 00
Syphon jet bowl	18 75
"Richelieu" bowl	10 50

CLOSET TANKS—LOW DOWN—

Oak wood, Tank and inside fittings with bend and supply	11 20
Mahog. Wood Tank, and inside Fittings with bend and supply	15 40
Oak Vitro or Pussyfoot Tank and inside Fittings with bend and supply	11 20
White Vitro or Pussyfoot Tank and Inside Fittings with bend and supply	13 45
White Enam. Tank F-585 or P.9262, or White Vitreous China Belmeade Tank with fittings (as above)	19 25

CLOSET SEATS—

Oak Rich. Seat and Cover to wall	3 50
Oak Woodstrip Seat and Cover with bolts	3 50
Oak Woodstrip Seat less Cover with bolts	2 90
Oak Post Hinge Seat and Cover	3 85
Mahog. Fin. Post Hinge Seat and Cover	4 05

SALES IN TIN PLATES ONLY FAIR

Toronto.

Tin plates have not fluctuated in price. The sales in this line have only been fair during the last two weeks.

Most of the tin plates being sold in Canada, and especially the better vari-

eties, are being made in England. Out of five of the tin smelters in the United States, two will be closed down by the first of the year, and will remain closed until the return of better business conditions. Before the war no tin smelters existed in the States, all the tin concentrates from Bolivia and Singapore being sold to England and Germany to be treated and the finished plates were sold to the U. S. During the war five smelters were built, some of which are now being forced to close on account of not being able to compete with British exports of tin plate.

PLATES, (COKE TIN)—

20x28 100 lbs. basis, box	15 50
20x28 IC, 112s, box	16 00
20x28 IX, 112s, box	18 50
20x28 IXX, 56s, box	10 50
20x28, IXXX, 56s, box	11 50
20x28, IC Terne, 112s, box	16 00

PLATES (CHARCOAL TIN)—

20x28, IX, 56s, box	8 50	9 00
20x28, IXX, 56s, box	9 90	10 50

TIN PLATES—(For Boilers)—

	Small Lots Per C. lbs.	Case Lots
14x60 IXX, 56 sheets per case	12 50	12 00
14x60 IXXX	12 50	12 00

TINNED SHEETS FOR MILK CANS—

16 1/2 x 41 3/4 18 ga.	9 65	9 15
21 x 41 3/4 18 ga.	9 65	9 15
30 x 72, 20 ga.	14 50	14 00
30 x 45 1/2, 2 ga.	10 15	9 65
30 x 50, 22 ga.	10 25	9 75
30 x 54, 22 ga.	10 30	9 80
30 x 78, 22 ga.	10 35	9 85
30 x 72, 22 ga.	15 00	14 50
36 x 84, 22 ga.	15 00	14 50
42 x 84, 22 ga.	15 75	15 25
48 x 96, 22 ga.	16 50	16 00
30 x 50, 24 ga.	10 25	9 75
30 x 54, 24 ga.	10 30	9 80
30 x 58, 24 ga.	10 35	9 85
30 x 72, 24 ga.	15 00	14 50
36 x 84, 24 ga.	15 00	14 50
42 x 84, 24 ga.	15 75	15 25
30 x 72, 26 ga.	15 50	15 00

GALVANIZED SHEETS HAVE STEADY MARKET

Toronto.

No price changes have occurred on galvanized sheets. A steady market is noted for the last week.

See prices herewith.

GALVANIZED SHEETS—

	Premier and Apollo	Queen's Head
10 1/2 oz.	6 90	7 40
U. S. 28 base	6 50	6 90
U. S. 26 base	6 30	6 60
22 and 24	6 05	6 45
18 and 20	6 05	6 30
16	5 90	6 15
12 and 14	5 75	6 00
28 gauge, base	7 50	8 00
26	7 35	7 60
24	7 05	7 30
22	6 90	7 15
28 gauge base	7 25	7 50
26	6 85	7 10
24	6 55	6 80
22	6 40	6 65

An extra 20c. per 100 lbs. is charged for Keystone and Premier brands copper-bearing sheets.

An extra is now charged on galvanized sheets. 10 1/2 oz. and 28 ga., when shipped out in sheets 3 feet wide. The extra charged over prices shown in 20c. per 100 pounds.

TANK STEEL PLATES—

1/4 in. and heavier, base	3 60
3-16 in.	3 95

BLUE ANNEALED SHEETS—

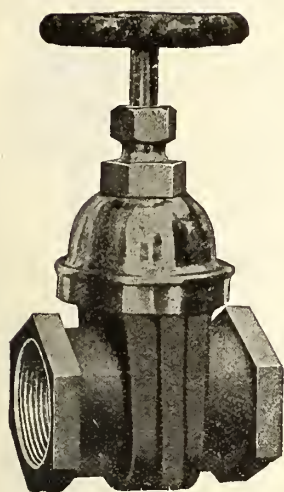
10 gauge, base	4 50	4 60
12 gauge	4 55	4 65
14 gauge	4 60	4 70
16 gauge	4 65	4 75

BLACK SHEETS—

18-20 gauge	5 25	5 35
22-24 gauge	5 30	5 40
26 gauge	5 35	5 45
28 gauge	5 50	5 60

A charge of 25c per 100 lbs. is made for less than case lots. An extra 10c. per 100 lbs. is also charged on sheets 23 in. wide.

KERR VALVES



No. 43—Screwed

The illustration here is of our genuine WEBER PATENT Bronze Gate Valve.

All old timers remember it as the best made and best appearing gate made in Canada.

It earned its reputation years ago, and still maintains it. It has stood the test of time.

What better recommendation could one ask for a valve, than to meet all comers for 40 years.

It has had its imitators, but the genuine Kerr Weber Gate leads the procession.

Get out in front and use Kerr's Weber Gates. You will see the difference.

The **KERR ENGINE COMPANY**
LIMITED

WALKERVILLE

Valve Manufacturers

ONTARIO

BEAVER BRAND

Porcelain Enamel Ware

—*Your Guarantee of Quality*—

Beaver Brand Enamelware by its ability to meet the highest demands for service under all conditions, has established itself in the confidence of the public to such an extent that each month witnesses an ever-increasing demand for products of Beaver manufacture.

Amherst Foundry Co., Limited

General Offices and Factory :

Amherst, N.S.

AGENTS:

Ontario:
MONARCH BRASS MFG. CO.
71 Brown St., Toronto

Manitoba and Northwest:
E. B. PLEWES
197 Princess St., Winnipeg

NO CHANGE IN PRICES OF BOILER TUBES

Toronto.

Fair sales in boiler tubes, both butt-weld and lapweld, have been made since last issue of Sanitary Engineer.

BOILER TUBES—		Seamless	Lapweld
1 inch	.....	20 00	.....
1½ inch	.....	22 00	.....
1¾ inch	.....	24 00	.....
2 inch	.....	24 50	.....
2½ inch	.....	22 00	19 50
3 inch	.....	24 50	.....
3½ inch	.....	29 00	23 50
4 inch	.....	34 00	30 00
4½ inch	.....	37 00	.....
5 inch	.....	39 50	35 00
6 inch	.....	50 00	45 00

Prices, per 100 ft., f.o.b. Montreal.

RADIATION GOODS MARKET QUIET

Toronto.

The radiation goods market is without feature, a quiet tone having prevailed during the past two weeks.

RADIATORS AND BOILERS—

Revised radiator list prices are for 1, 2, 3, 4 and 5-column radiators per square foot.

38 in., \$1; 32 in., \$1.10; 30 in., \$1.15; 26 in., \$1.20; 23 in., \$1.26; 22 in., \$1.30; 20 in., \$1.36; 18 in., \$1.40; 16 in., \$1.50; 14 in., \$1.55; 13 in., \$1.60

Discount on 2, 3, 4 and 5 column standard sizes, 44 per cent. for water and 45 per cent. for steam.

Discount on 1-column standard size, and 2, 3, and 4-column hospital sizes 36 per cent. for water and 37 per cent. for steam.

Discounts on 1 column hospital size water 22 per cent. Steam 23 per cent.

Wall radiators—5 ft., \$1.15; 6 ft., \$1.10; 7 ft., \$1.05; 9 ft., \$1.05; 12 ft., \$1.05. Discount 41 per cent.

BOILERS—

Water:

Round 52 per cent. off list. Square 8 per cent. off list.

Steam:

Round, 13 per cent. off list; Square, list plus 7 per cent.

TIN AND SPELTER INGOT PRICES DECLINE

Toronto.

Ingot tin which has been selling at \$46.00 to \$48.00 felt a decline and is now going at \$45.00 to \$46.00.

Spelter ingots which were getting a price of \$10.00 to \$10.25 per cwt., are now selling at \$9.00 per cwt.

Other ingot metals are not changed in price. See prices herewith.

INGOT METALS—

Copper \$18.00; Tin \$45.00 to \$46.00; Lead \$8.00 to \$8.25; Spelter \$9.00; Antimony, \$8.25 to \$8.75; Aluminum, \$23.00 to \$25.00.

GOOD SALES FELT IN COTTON WASTE MARKET

Toronto.

Prices are still firm and unchanged on cotton wastes. A good volume of business has been reported during the past two weeks.

COTTON WASTES—

XC.....	015½
XXX extra	0 20
X, grand	0 18½
XLGR.....	0 17
X, Empire	0 15½
X, press.....	0 14
Colored, No. 1	0 14½
No. 17	0 14½
No. 1A.....	0 13½
No. 1B.....	0 11½
Fancy	0 15½
Lion	0 14
Standard	0 12½
Popular	0 10½
Keen	0 08½
X	0 17
Above lines subject to trade discount for	
Cream, polishing	0 24
White, XXX.....	0 21
XX	0 18

STEADY VOLUME OF PORTLAND CEMENT SELLING

Toronto.

The building activities which are keeping up steadily are creating a steady market for Portland cement.

See prices herewith.

CEMENT—

Car lots, per barrel 3 45
Less car lots, per barrel, f.o.b. yard., 4 35
Per barrel, delivered 4 55
Single bags, 1.15 each, 4 bags to barrel.
Extra charge of \$1.50 per load on less than 24 bag lots.
Rebate of 20c. each for empty bags.

ENAMELED FITTINGS REMAIN UNCHANGED IN PRICE

Toronto.

Good sales are reported in enameled fittings. Prices are the same as heretofore published.

ENAMELED FITTINGS—

Enameled Iron Baths, 3" roll rim, 4 ft.,
4 ft. 6 in., 5 ft. 51 40
Do., 5½ ft. 57 10

Lavatories—

17x19" Apron F139 or P4045..... 15 30
18x24" Apron F154 or P3845 or P3847 23 60
18x21" Apron F169 or P4205..... 17 60
18x21" Roll Rim, F197, F199 or
P4655-6 15 40

17x19" Roll Rim, F241 or P4345 12 60
Sinks, Roll Rim, 16x24 in. 18 40
Do., 18 x 30 in. 23 00
Do., 20 x 30 in. 24 70

Sinks, Flat Rim— 3 only 2 only 1 only
16x24 \$7 60 \$7 70 \$7 80
18x30 8 50 8 60 8 70
20x30 9 70 9 80 9 90

List less 30 per cent.

EAVESTROUGH AND CONDUCTOR PIPE

Toronto.

No new prices are in force on eave-trough and conductor pipe. Trading is fair only in these lines for the past two weeks.

TROUGH (Eave)—

O. G. Square Bead—
Per 100 ft. Per 100 ft.
8 inch \$15 90 15 inch..... \$34 50
10 inch 17 70 18 inch..... 44 00
12 inch 21 20

O. G. Round and Half Round—

8 inch 16 90 15 inch..... 35 50
10 inch 18 70 18 inch..... 45 00
12 inch 22 20

Less 65 and 5 per cent.

PIPE (Conductor)—

Plain, round or corrugated
Per 100 ft. in 10 ft. lengths

2 in., in 10 ft. lengths, list..... 18 40
3 in., in 10 ft. lengths, list..... 22 30
4 in., in 10 ft. lengths, list..... 29 60
5 in., in 10 ft. lengths, list..... 48 00
6 in., in 10 ft. lengths, list..... 58 80

Less 65 and 5 per cent.

CONDUCTOR ELBOWS—

Plain, round or round corrugated:
2 inch, list \$ 5 25
3 inch, list 6 00
4 inch, list 10 50
6 inch, list 29 00

Outlets, cut offs, tubes and conductor hooks
List less 50 and 10 per cent.

CANADA PLATES REMAIN FIRM IN PRICE

Toronto.

Sales of plates have been fairly heavy. No prices have been changed on Canada plates. See list herewith.

CANADA PLATES—

	Per box
Ordinary, 75s	5 65
Blued, 75s	5 95
Blued and oiled, 75s.....	6 05
Polished, 75s	6 85
Ordinary, 60s	5 50
Blued, 60s	5 80
Blued and oiled, 60s.....	5 90
Polished, 60s	6 70
Ordinary, 52s	5 40
Blued, 52s	5 70
Blued and oiled, 52s.....	5 80
Polished, 52s	6 60
Welsh polished, 60s	7 35
Welsh polished, 52s	7 10

WROUGHT IRON BUTTWELD AND LAPWELD PIPE

Toronto.

Prices on list number 59, dated April 24, 1923, covering lapweld and butt-weld iron pipe are correct, no changes having occurred.

Price List No. 59.

Standard Butt-weld Pipe S C per 100 feet.

Size	Steel Blk.	Gen. Galv.	Wrot. Blk.	Iron Galv.
1½ in.	6.00	8.00	.....	.....
2 in.	4.32	6.30	7.56	9.60
2½ in.	4.32	6.30	7.56	9.60
3 in.	5.53	6.97	7.82	9.35
3½ in.	6.79	8.40	9.55	11.27
4 in.	9.69	12.07	13.77	16.32
4½ in.	13.11	16.33	18.63	22.08
5 in.	15.68	19.53	22.28	26.40
6 in.	21.09	26.27	29.97	35.52
8 in.	33.35	41.54	.....	.....
10 in.	43.61	54.32	.....	.....
12 in.	56.12	69.00	.....	.....
14 in.	66.49	81.75	.....	.....

Standard Lapweld Pipe S/C per 100 ft.

Size	Steel Blk.	Gen. Galv.	Wrot. Blk.	Iron Galv.
2 in.	24.42	29.60	33.30	38.85
2½ in.	36.27	44.46	50.31	59.09
3 in.	47.43	58.14	65.79	77.27
3½ in.	57.04	69.92	79.12	92.92
4 in.	67.58	82.84	93.74	110.09
4½ in.	78.74	96.52	114	133
5 in.	91.76	112.48	133	155
6 in.	1.19	1.45	1.73	2.02
7 in.	1.55	1.90	2.21	2.62
8 in.	1.63	2.00	2.33	2.75
9 in.	1.87	2.39	2.68	3.17
10 in.	2.31	2.83	.....	.....
12 in.	2.14	2.62	3.04	3.58
14 in.	2.76	3.38	3.91	4.61

NO NEW PRICES ON RANGE BOILERS

Toronto.

Range boilers have had a steady movement this last half month; no new prices are in force.

RANGE BOILERS—

	St'nd'rd	Ex. He'vy
5 gallon	8 77	.....
10 to 15 gallon.....	9 10	.....
18 gallon	9 75	.....
25 gallon	10 70	.....
30 gallon	11 35	13 13
35 gallon	13 30	15 33
40 gallon	14 80	17 03
52 gallon	24 70	28 50
66 gallon	39 50	45 56
82 gallon	48 10	55 50
100 gallon	66 95	77 25
120 gallon	76 05	87 75
144 gallon .....	.....	122 50
165 gallon .....	.....	140 25
192 gallon .....	.....	157 50

EXTRAS—

Add
For horizontal tapping 1 15
1" Special for gas heater 1 00
Each extra 3" tapping 3 00
Each extra 2" tapping 1 75

ALL GRADES OF SOLDER DECLINE IN PRICE

Toronto.

A decline amounting to approximately 10 per cent. is now in effect on all grades of solder.

Other lines of lead and zinc goods remain unchanged in price.

See prices given herewith.

LEAD AND ZINC GOODS—

Lead pipe, per 100 lbs., up to 2".....	14 50
Do., 2" to 8"	15 50
Do., 8" and over.....	16 50
Lead waste, per 100 lbs.....	15 50
Note—Lead pipe is subject to a discount of 10 per cent.	
Lead traps and bends	15½
Lead wool, lb.	0 14½
Lead sheets, 2½ lbs., sq. ft. per lb.	0 12½
Lead sheets, 3 to 3½ lbs., sq. ft. per lb.	0 11½
Do., 4 to 8 lbs., sq. ft. per lb.	0 10
Cut sheets, ¾ c. per lb. extra.	.....
Cut sheets, to size, 1 c. per lb. extra.	.....
Solder, guaranteed, lb.	0 29
Do., strictly, lb.	0 27
Do., commercial	0 26
Do., wiping	0 27
Do., wire	0 33
Zinc sheets, casks, lb.	0 11¾
Do., do., less, lb.	0 12¼

RADIATOR HANGER

YOU'LL USE 'EM YET!



Advantage No. 5

They provide the modern sanitary way to install radiators—easy to clean underneath.

For ANY style radiator; ANY type wall construction.

Write for the whole list of their advantages.

Healy-Ruff Co.

Dept. 23

Minneapolis, Minn.

"Made in Canada"

A Suggestion

"Medium Weight soil pipe has a round bead pattern at the hub to distinguish it readily from the Extra Heavy weight pipe which has a flat bead pattern.

This is only a matter of design, one being as strong as the other.

We respectfully suggest the advisability of continuing the excellent practice of invariably specifying medium weight pipe in the round bead pattern."

**TORONTO HARDWARE MFG.,
CO., LIMITED**

Strong - Handsome - Durable



JENKINS

Bronze

Swing Check Valve

Equipped with Renewable
Composition Disc

These Valves have the Jenkins Renewable Disc feature. Angle of seat assures ready opening at low pressure and the shock of closing under high pressure is absorbed in the line piping.

Disc lifts well out of passage. Hanger is heavy and has large bearing surface for carrying disc holder.

Valve illustrated is Fig. 475, Standard Pattern, suitable for 150 pounds working pressure.

Catalog No. 9 describes valve in detail. Write for free copy.

JENKINS BROS., LIMITED

Head Office and Works:

103 St. Remi St. - Montreal

Sales Offices: Toronto, Vancouver.

European Branch: 6 Great Queen St., Kingsway, London, W.C. 2, Eng.

Factories: Montreal, Bridgeport, Elizabeth.

Always marked with the "Diamond"
Jenkins Valves
SINCE 1864

STEADY ACTIVITY REPORTED ON SOIL PIPE

Toronto.

The soil pipe market shows no change during the past two weeks, trading being fairly steady and prices remaining unchanged at the following levels:

PIPE AND FITTINGS—			
2 inch	.....	Less	20%
3 inch	.....	Less	20%
4 inch	.....	Less	25%
5 and 6 inch	.....	Less	20%
8 inch	.....		net
FITTINGS—			
8 inch fittings	.....		net
2 to 6 inch	.....	Less	37½%

PRICES ON CORRUGATED SHEETS ARE FIRM

Toronto.

See following list for prices on corrugated sheets, which are firm in price with steady trading.

CORRUGATED SHEETS—		Per 100 sq. ft.
No. 28 gauge	.....	7 00
No. 26 gauge	.....	7 50
No. 24 gauge	.....	10 00
No. 22 gauge	.....	12 50
No. 20 gauge	.....	14 00
No. 18 gauge	.....	19 00
Less 10 per cent.		
Lighter than 24 gauge and wider than 27 ins.		
75 cents per square extra.		

STRONG TONE TO SOIL PIPE AND FITTINGS

Winnipeg.

Soil pipe and fittings continue in a firm position. The demand for this line is good at the present time and no change in quotations is expected.

CLOSET COMBINATIONS AT LOWER PRICES

Winnipeg.

A slight reduction is in effect on China tank closets. One line with oak seat and lid and tank fitted with compound lever ball cock is quoted at \$32.

REVISION IN DISCOUNTS ON RADIATOR FITTINGS

Winnipeg.

A revision in discount is recorded on radiator fittings such as valves and elbows. The new discount is 55 per cent.

COPPER RIVETS AND BURRS AT LOWER LEVELS

Winnipeg.

A reduction in the price of copper rivets and burrs is announced and the following prices prevail on the local market:

COPPER RIVETS—	
Per lb.—No. 8, 47½¢; 10 51½¢; 12 55¢.	
COPPER BURRS	
Per lb.—No. 8, 47½¢; No. 9, 49½¢; 10 51½¢; 12 55¢.	
COPPER RIVETS AND BURRS ASSORTED—	
No. 8, per lb. 50½¢; No. 9 55¢; No. 10 57¢.	

EAVE AND CONDUCTOR PIPE CONTINUES STEADY

Winnipeg.

There are no changes in the prices of eaves and conductors on the local market. With increased building activity an improvement is noted in the demand.

LEAD AND ZINC GOODS UNCHANGED

Winnipeg.

No changes have occurred in prices on lead and zinc goods. A seasonable amount of these goods is in evidence.

GOOD DEMAND FOR COTTON WASTE

Winnipeg.

Dealers report that sales of cotton waste are showing an improvement and quotations show no change.

Calgary, June 28.—Conditions look so promising for a bumper crop that nearly all early buying for fall will have to be reconsidered and to a good extent increased. Each week's crop report, without exception, confirms the optimistic reports of previous weeks and adds a little hereto. Rainfall for the last thirty days has been eleven inches, the heaviest in June since 1902. With the warm growing weather between rains, the crop is advanced fully two weeks and an early harvest is almost assured. Samples of wheat thirty inches high are shown, which in some cases are beginning to head out. The hay crop is very heavy, and stock and dairying are showing the results of plenty of feed. Judging by displays and advertising, competition is keen on summer lines, which are active,

Winnipeg, Man.

WINNIPEG, June 28.—Merchants from all centres report that business is steadily improving, and as crop conditions in the West are encouraging and a bumper crop is expected unless something unforeseen happens, more optimism and confidence is shown. There is a firmer tone to plumbers' and steamfitters' lines. Galvanized sheet iron as well as black steel sheets have moved upward. Kitchener bibbs and bath supply pipes have also shown an advance. Wrought washers have declined and lower quotations are in effect. There is a strong tone to soil pipe and fittings. Copper rivets and burrs show a slight decline. Water pressure drainers are quoted at lower levels. There is a revision in discounts on radiator fittings and new list price is in effect on swing check valves. Lead and zinc goods continue steady. Cotton waste is showing an improvement in the demand.

GALVANIZED SHEET IRON AT HIGHER LEVELS

Winnipeg.

An advance has been recorded in quotations on galvanized sheet iron, and the following prices are in effect:

SHEET IRON—Galvanized—		Per 100 lbs.
Size 16 Gauge	.....	8 25
Size 18 Gauge	.....	8 40
Size 20 gauge	.....	8 40
Size 22 gauge	.....	8 55
Size 24 gauge	.....	8 55
Size 26 gauge	.....	8 70
Size 28G x 30	.....	9 00
Size 28G x 36	.....	9 30
Size 10¾ ounce x 30	.....	9 40
Size 10¾ ounce x 36	.....	9 70

BLACK STEEL SHEETS MOVE UPWARD

Winnipeg.

In sympathy with the strength of the steel market an advance has been recorded on black steel sheets on the local market and the following prevailing prices are in effect:

BLACK STEEL SHEETS—		Per 100 lbs.
Size 10 gauge	.....	6 35
Size 12 gauge	.....	6 35
Size 14 gauge	.....	6 50
Size 16 gauge	.....	6 55
Size 18 gauge	.....	7 15
Size 20 gauge	.....	7 15
Size 22 gauge	.....	7 20
Size 24 gauge	.....	7 20
Size 26 gauge	.....	7 25
Size 28G x 30	.....	7 35
Size 28G x 36	.....	7 50

BATH SUPPLY PIPES MOVE UPWARD

Winnipeg.

Some lines of bath supply pipes have advanced. One line nickel-plated and brass tubing is quoted at \$2.95 per pair. Another line with slip joint nut for half inch inside pipe connection at floor is quoted at \$2.75 per pair.

WROUGHT WASHERS AT LOWER LEVELS

Winnipeg.

A decline in quotations is recorded on wrought washers and the following sizes are quoted as listed below:

WROUGHT WASHERS—		Case Lots	Less
		Per 100 lbs.	
Size 3-16 in.	.....	14 10	14 60
Size ¼ inch	.....	12 48	12 98
Size 5-16 in.	.....	11 76	12 26
Size ¾ in.	.....	10 95	11 45
Size 7-16 in.	.....	10 32	10 82
Size 1½ inch	.....	9 96	10 46
Size 9-16 in.	.....	9 87	10 37
Size 5¼ in.	.....	9 78	10 28
Size 3¼ in.	.....	9 69	10 19
Size 1½ in.	.....	9 60	10 10
Size 1 inch	.....	9 60	10 10
Size 1½ in.	.....	9 60	10 10
Size 1¼ in.	.....	9 78	10 28
Size 1 7-16 in.	.....	9 78	10 28
Size 1½ in.	.....	9 78	10 28

KITCHENER BIBBS MOVE UPWARD

Winnipeg.

A slight advance has been recorded on the Kitchener bibb. Nickel plated, swan neck half inch, is quoted at \$24.75 per dozen.

REDUCTION ON WATER PRESSURE DRAINERS

Winnipeg.

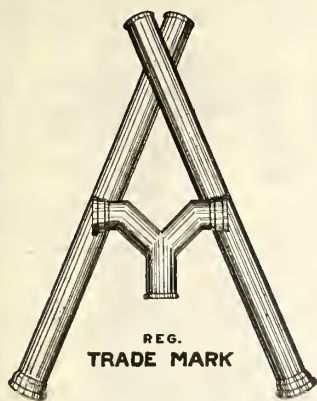
A slight reduction is in effect on Penberthy water pressure drainers, and quotations are \$1.75 each.

NEW LIST PRICE ON SWING CHECK VALVES

Winnipeg.

Dealers have advised the trade that a new list price is in effect on swing check valves and the various sizes are as follows:

SWING CHECK VALVES—Each—	
Size ¾ in. \$1.20; 1½ in. \$1.30; ¾ in. \$1.90;	
1 in. \$2.60; 1¼ in. \$3.60; 1¼ in. \$5.00; 2 in.,	
\$7.50; 2½ in., \$14.00; 3 in., \$21.00. Puls 20 per cent.	



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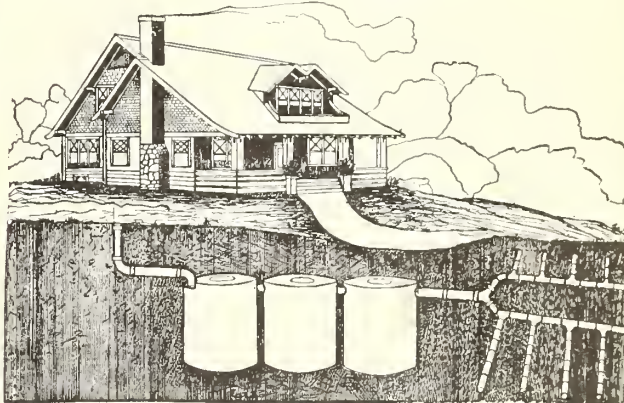
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United Brassfounders & Engineers, Ltd., Manchester, Eng.

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Canada Metal Co., Ltd., Toronto.

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W. H. Cunningham & Hill, Ltd., Toronto.
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Empire Mfg. Co., Ltd., London and Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
United Brassfounders & Engineers, Ltd., Manchester, Eng.
Wallaceburg Brass & Iron Mfg. Co., Ltd., Wallaceburg, Ont.
Wolverine Ltd., Toronto, Ont.

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Kerr Engine Co., Ltd., Walkerville.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
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United Brassfounders and Engineers, Ltd., Manchester, Eng.
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Steel Trough & Machine Co., Ltd., Tweed, Ont.

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Steel Trough & Machine Co., Ltd., Tweed, Ont.

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Hamilton.

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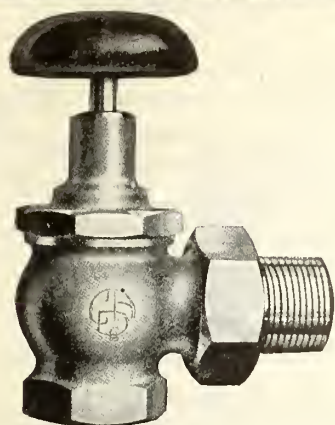
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Smart Turner Machine Co., Ltd., Hamilton, Ont.
Standard Sanitary Mfg. Co., Ltd., Toronto,
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Steel Trough & Machine Co., Ltd., Tweed, Ont.

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W. H. Cunningham & Hill, Ltd., Toronto

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Gurney Foundry Co., Ltd., Toronto.

WRENCHES

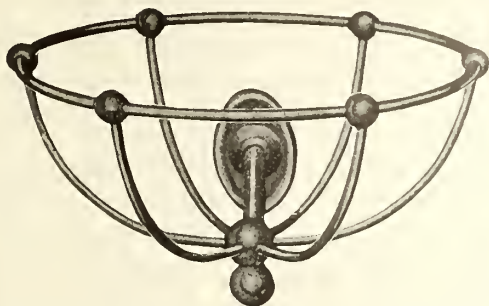
Greenfield Tap & Die Corp., Galt, Ont.
Trimont Mfg. Company, Boston, Mass.

WROUGHT COUPLINGS AND NIPPLES

Canada Metal Co., Ltd., Toronto.
Fittings, Ltd., Oshawa.

**When Answering Advertisements Mention
SANITARY ENGINEER**

TORONTO
Gendron
CANADA



Sell a Complete Set of Bathroom Fittings

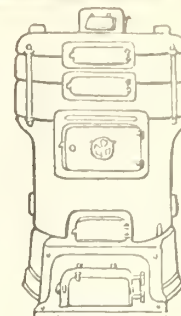
When you have installed a new bath room in an old house, then is your opportunity to sell a **complete** set of bath room fittings. A few extra dollars is never denied the persuasive salesman.

The fittings will be Gendron—of course.

The Gendron Mfg. Co., Ltd.
Duchess Street, Toronto

Burnham Boilers

A Grave Fact



It has the same 3 times back and forth fire travel, and between section flues as the regular Burnham sectional. Long on fire travel, short on coal bills.

It's a wise man who digs his own grave in which to bury his troubles.

The Burnham Round Sectional boiler is a grave digger. It digs right in and buries your heating troubles.

It's sectional in construction, and a whale in the work it does.

Sections can slip through the usual door opening.

Send for circular.

Lord & Burnham Co. Limited
of Canada

(Boiler Department)

Harbor Commission
Building,
Toronto, Ont.



Factory:
St. Catharines, Ont.

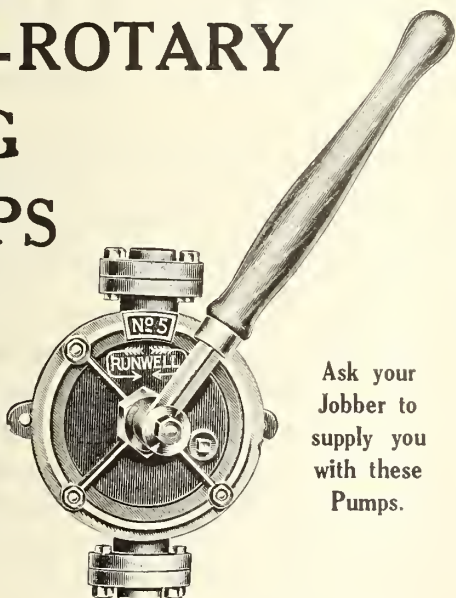
TRADE

RUNWELL

MARK

SEMI-ROTARY WING PUMPS

British
Manufacture



Ask your
Jobber to
supply you
with these
Pumps.

Representatives:

BRITISH COLUMBIA; U.S.A.—WASHINGTON, OREGON, CALIFORNIA.

FRANK RAW & CO., 198 Hastings St. W., Vancouver, B.C.

MANITOBA, SASKATCHEWAN, ALBERTA:

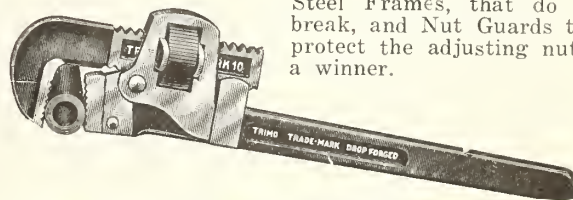
FREDERIC SARA & CO., Calgary.

ONTARIO, QUEBEC, MARITIME PROVINCES:

UNIVERSAL SUPPLIES, LTD., 212 Coristine Bldg., Montreal.

TRIMO

A Winner Always



The "Trimo" Wrench, with Steel Frames, that do not break, and Nut Guards that protect the adjusting nut is a winner.

Has insert jaw in handle, replaceable when worn, saving the handle. A hidden spring always in place. Made in both wood handles and steel handles.

Trimont Manufacturing Co.

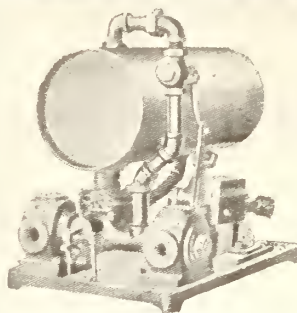
55-71 Amory Street

Roxbury (Boston), Mass., U.S.A.

CANADIAN REPRESENTATIVE

George P. Fraser, 28 Temple Ave.

TORONTO



FARRFHERN CONDENSATOR

The only machine of the kind designed for service on low pressure Steam Atmospheric and Vapor heating.

The distinguishing features are a short sensitive leverage which assures the positive operation at all time.

The Steam enters the Top of the Tank with the Steam Valve high up, thus preventing flooding of the Steam line.

The water ways are large, thereby accelerating the return of condensation and discharge of air.

It is the simplest, most durable and dependable equipment that can be placed on any Steam Heating System.

Write Us for Information

Farrfhern Steam Service

304 Manning Chambers, Toronto

WROUGHT PIPE



Suitable for the approaching period of building activity, road construction, etc. This is a line of great importance in making successful, profitable contracts. Our C. T. Brand of Wrought Pipe has been

THOROUGHLY INSPECTED by practical, experienced men. It is tested to 600 lbs. hydraulic pressure, and branded with our trade-mark. We carry this line of reliable pipe in sizes 1/8-in. to 4-in. Black or Galvanized. We also manufacture nipples and couplings, black and galvanized, in all sizes.

Ask your Jobber for C. T. Brand Wrought Pipe

Canadian Tube and Steel Products Co., Ltd.

Operating Canadian Tube and Iron Co., Limited
Works at Lachine Canal, Montreal

PATENTED
IN
CANADA



**Better
Selling
Value
Than Ever**

We have equipped our Steel Baths with Pressed Steel Removable Legs and 3 inch Roll Rim around the top, for which we have secured a Canadian Patent. This Roll Rim adds greatly to the selling value of

TWEED ENAMELLED STEEL BATHS

They now look like the expensive cast enamel baths but are the same price as before. Our new patent Roll Rim Enamelled Steel Baths are now ready for shipment—Order samples.

The Steel Trough & Machine Co. Ltd. Tweed, Ont.

Toronto Office—220 King St. W. A. R. Wooldridge, Representative.

Montreal Office—10 Victoria St. G. M. Price, Representative.



Specialists in the production of—
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FORTY YEARS' experience—backed by one of the largest and best-equipped printing plants in Canada and the men who know how—enables us to offer you a complete printing service.

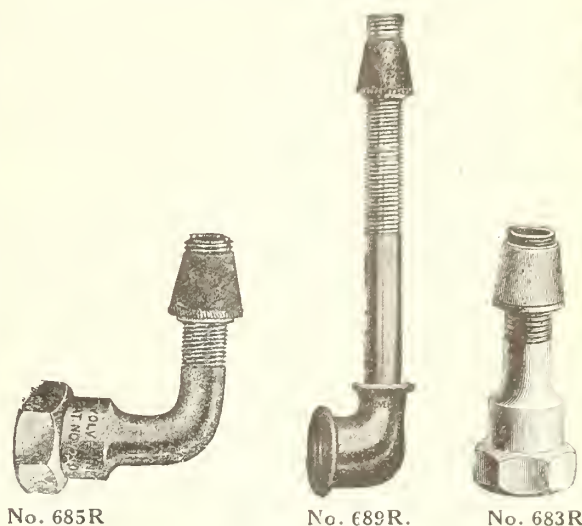
Send us samples of your catalogue or other printed matter, and write us fully as to your requirements. We will give your proposition thorough consideration and advise you intelligently. This will incur no obligation on your part, and may mean greatly increased effectiveness of your printing.

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Save Golden Hours

Use Only
**Wolverine Patented
Simplex Basin**
Flexible Connections



WOLVERINE
LIMITED
76 Nelson St. Toronto-

Pressure Relief Valve

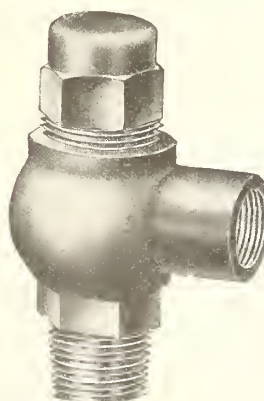


Fig. 655

3/8 in. I. P. Size Brass

For
Closed Tank Systems
Water Mains
Rural Systems
Etc.

Can be set 30 to 125 lbs.
Regular Stock
Set 40, 60, 80 lbs

Send Us
Your Mail Orders



Makes Plumbing and Heating Jobs Really Safe

THE use of safety valves on Range Boilers, Closed Plumbing Systems and Hot Water Heating Plants has been strenuously advocated since 1917, as a safeguard for the protection of life and property.

To-day, over 50,000 Donnelly Safety Relief Valves are in use in this service in homes and other buildings and their installation is being made in ever increasing numbers.

The Donnelly Valve, by reason of its superior design, material and workmanship is admirably adapted for this service. It has no interior springs and no weights of any kind. The setting mechanism is so simple that any mechanic can easily and quickly set it for any pressure from a fraction of a pound up, an exclusive feature.

By suggesting the use of a safety valve in connection with hot water heating and closed plumbing work, the heating and plumbing contractor not only renders a real service to his customer but incidentally makes an additional profit on each job. A Donnelly Safety Valve saves going back to the job—once installed it never fails.

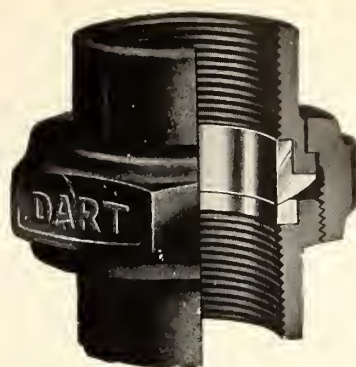
Ask Your Jobber or Write Us.



The Donnelly Pressure Relief Valve for closed plumbing and hot water heating systems makes homes safe.

If you have device of equal merit to our Pressure Relief Valve we will consider marketing same.

IRA I. NELSON
PLUMBING SPECIALTIES
TEN HIGH STREET
BOSTON, MASS.
U. S. A.



Dart Unions

Locked beyond possibility of leakage

The use of Dart Unions is positive insurance against leaks.

Heat, cold, expansion, contraction or vibration are encountered and overcome.

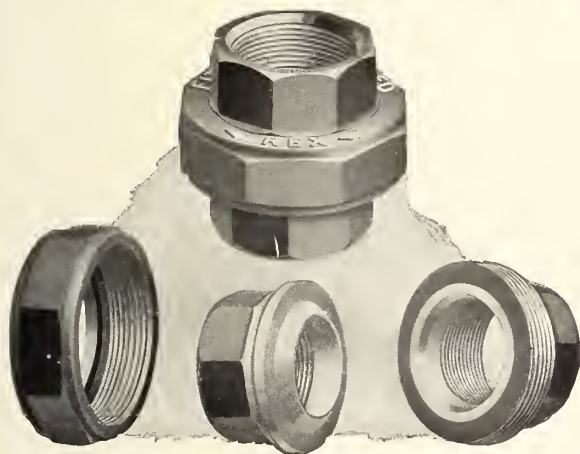
The joint being Bronze to Bronze and the Malleable Iron Pipe Ends and Nuts being of extra weight ensures that the Dart will "stay put" till taken apart with a wrench.

Your Jobber Sells Them

Manufactured by
DART UNION COMPANY, LIMITED
TORONTO, CANADA

Easily
Connected

Seven Points of "REX" Union Superiority



- 1 "Rex" Unions are tested and guaranteed to stand 250 lbs. working pressure.
- 2 The counterbored ends prevent the first thread becoming battered and permits an easy entrance of the pipe.
- 3 They will not corrode and will withstand vibration, expansion, contraction, fluctuating pressures and other severe conditions.
- 4 The bronze to iron seat, as used in "Rex" Unions, is recognized as the best known combination of metals to be used for permanent joints and where frequent disconnecting is necessary.
- 5 The octagonal shape of the three parts permits of connections being made with an ordinary monkey wrench.
- 6 The uniform diameter of the waterway insures an unobstructed flow and thorough drainage.
- 7 "Rex" Unions can be supplied threaded to either Briggs or Whitworth Standard and can therefore be used for your export trade.

A Proof of "Rex" Union Superiority
Canadian Car & Foundry Company, Limited
Montreal, Que.

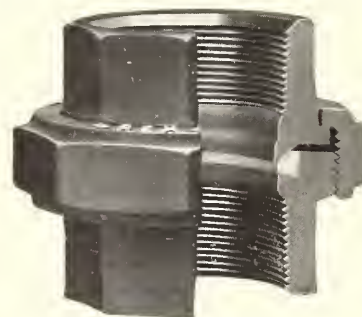
FITTINGS, LIMITED, Oshawa, Ont.

Dear Sirs:—Confirming our conversation with regard to Rex Unions; as you are aware, we have recently purchased from your Company a large quantity of Rex Unions, and have found them satisfactory in every respect. They appear to have more metal in them than other Unions, and we also find them interchangeable; in fact we are very well pleased with them and intend specifying your Unions on our orders where we can consistently do so.

Yours very truly,

CANADIAN CAR & FOUNDRY COMPANY, LIMITED,

FITTINGS LIMITED
Oshawa, Canada



Manufacturers of
"DIAMOND" PIPE FITTINGS



Testing Time

Both before and after Vitro Fittings are installed in Vitro Tanks they are carefully tested and all necessary adjustments made.

These tests and inspections are so stern and exhaustive that any latent weakness is brought to light, any defective material exposed. Everything on every Vitro is working smoothly and is ready for operation when it leaves the factory.

Combined with mechanical excellence the New Design Vitro has, also, beauty of line and beauty of finish. It looks the aristocrat it really is.

—And this beauty is changeless. Never will it crack, chip or stain. The long years of its unfailing service mark its real testing time and its triumph.

Still Leading All Canada in Sales. Your Jobber Has Them.

Galt Brass Company, Limited

GALT

ONTARIO

VITRO
NO TROUBLE
TANK

Sanitary Engineer

Plumber and Steamfitter of Canada

Vol. XVII.

PUBLICATION OFFICE, TORONTO, JULY 15, 1923

No. 14



A-840

Are you sure of the valves you install?

Are you sure that they will stand up under excessive pressure, that they will give a lifetime of service and that they may be depended upon at all times?

Let "Emco" dispel all doubt and worry. "Emco" disc steam valves are approved by the government for working pressure of 175 lbs. They are fitted with special heat resisting radium discs which last a lifetime under severe conditions.

You may back "Emco" steam valves to the limit in all your installations.

Our products are handled by the leading jobbers throughout the country.

Empire Brass Manufacturing Co., Limited
London and Toronto, Canada

THERE ARE MANY THOUSANDS
of
“PUSSYFOOTS”

in use throughout the Dominion. Our experience is that wherever they are installed they give **100 Per Cent.** satisfaction.

THERE COULD BE NO BETTER RECOMMENDATION

The Mechanical Portion of the Outfit is constructed in the simplest possible way—and only picked material of the highest quality is used.

In operation
it is
absolutely Silent.



Every Tank is thoroughly tested before leaving our Plant and **OUR GUARANTEE** stands

at the back
of every one sold.

Finished in
Oak,
Mahogany or
White

It costs no more
than
any other Tank.

Stocked by Every Jobber.
Specify “PUSSYFOOT” when ordering

THE CANADA METAL COMPANY
LIMITED

Montreal

Hamilton

TORONTO

Winnipeg

Vancouver



Summer Sales of Water Heaters

Rural Business is Brisk



Florence Oil Water Heater

THERE are wonderful sales opportunities open to every plumber who installs a water system in rural districts.

One of the first fixtures to be installed is a water heater. And no finer heater than the Florence Oil Water Heater is on the market.

It is a sturdy, compact, inexpensive heater that can be installed anywhere and brings at once city comforts to suburban life. It is simple, safe, efficient and economical. Every farmer and suburbanite in your district is a prospect.

Write to our nearest branch to-day for prices, sales literature and full particulars.

McClary's

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Toronto
St. John, N.B.
Saskatoon

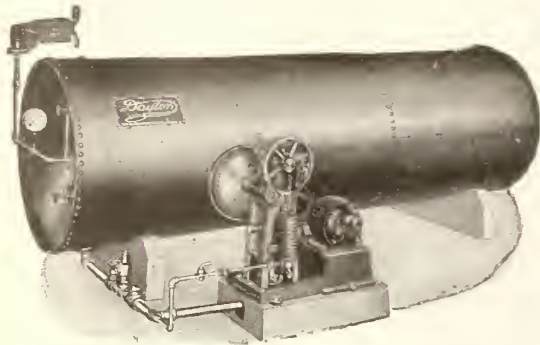
Montreal
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Calgary

Sell "Dayton" Pumps

Under the New

"Dayton" Plan



We have been preparing this plan for months. It is different. It works simply, too—like this:

You send us a list of twenty-five or thirty people who can profitably use a "DAYTON" Water Supply System. We then mail a series of five handsome advertisements to these prospects—advertisements that will interest, convince and sell. Each mailing piece carries YOUR name and address on a return post card. Our name is not shown.

We pay postage and all mailing expenses.

You get all the enquiries.

You close all the sales.

You don't risk a cent.

You are bound to profit.

Send in a list of prospects to-day, or if you wish to know more about this plan, just send the coupon and say you are interested. We will send full particulars by return mail.

T. G. GRIFFITH & COMPANY

Manufacturers and Sanitary Engineers

165 King St. E. - Toronto, Ont.

Distributors in Ontario for

THE DAYTON PUMP & MANUFACTURING CO.

Dayton, Ohio, U.S.A.



It's not a "DAYTON" Without this Trademark.

COUPON

Send me the "DAYTON" Water System Catalog and details of the "DAYTON" Selling Plan.

Name

Street

Town

Prov.

Dayton Pumps

Make the water do the running

THE NEW *Little Giant* PIPE WRENCH

Patented Feb. 4, 1913

Better Than Any Wrench
You've Ever Seen, Isn't It?

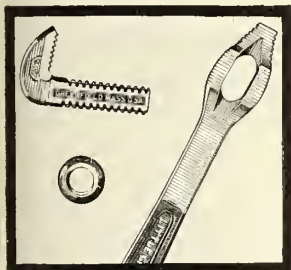
The strong head with the extra long handle, powerful jaw and nut—only three parts, of drop-forged, carefully heat-treated steel. A combination of simplicity and skillful design that makes a light, easy tool without cumbersome frame, rivets or delicate springs.

Two sets of teeth on the heads of smaller sizes and four on the larger not only double or quadruple the service life of this wrench but add to its adaptability in use.

With superior design and sturdy build the LITTLE GIANT is given greater leverage to save muscular energy when turning the tightest nuts and pipes.

It is ready to serve you as it is now serving hundreds of other wrench users who consider the LITTLE GIANT indispensable to their plant equipment.

Let us show you what users have to say of its performance. Write for circular No. 300E and name of nearest dealer.



ONLY THREE PARTS

Practically Indestructible

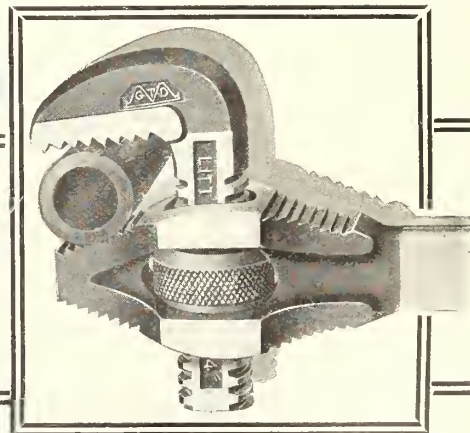
Note teeth on both sides of jaw.



American Plant: Greenfield Tap & Die Corporation, Greenfield, Mass.

GTD

Screw Plates, Taps, Dies, Reamers, Gages
Pipe Tools, Twist Drills, Machine Tools





A Letter from E. H. Gurney To the Canadian Trade

I received the following communication yesterday. We have passed it round the office and now we want to show it to our customers. It reads:

"My Grandfather bought a Gurney Stove in the days when your Grandfather was head of the Gurney Foundry. My Father bought a Gurney Furnace and Stove when your Father was head of the Company. And we have in our home a Gurney Furnace, a Gurney Gas Range and a Gurney Jacket Water Heater purchased since you succeeded to the Presidency of the Gurney Company. Three generations of have used the products of three generations of Gurneys, and all because of the satisfaction given by Gurney products. I wonder if you realize the value of the good old name 'Gurney' to your institution. It is a name that stands for quality and in which people have confidence. They know that if they buy anything made by Gurney they are buying satisfaction along with the article. I just pass this thought on to you, not because I am a personal friend of yours, for I have never met you, but because I have a friendly feeling towards the Gurney products that have served three generations of our family."

Our organization will try hard to live up to this, and I hope that the present Management, the result of these years of history, may carry on to serve three or more coming generations of the family of our good friend.

Faithfully yours,

A handwritten signature in dark ink, appearing to read "E. H. Gurney", with a long, sweeping horizontal line underneath.

President.

THE GURNEY FOUNDRY COMPANY, LIMITED.

"Everything for Heating and Cooking"

The Plumber Must Be a Teacher

Some men are content to put in any line of plumbing goods on any job. They don't care. And they don't go far. Other men, looking into the future, install the best equipment the job will stand. They talk about "pedestal lavatories," "built-in baths," "two bathrooms instead of one," "a bathroom for every two bedrooms," and so on. These plumbers are teachers. They are educating people to better living and greater comfort. They are creating satisfied customers and building bigger for themselves. Are you a teacher?

We back up our goods with a splendid campaign of advertising in rotogravure sections of Canada's biggest papers and in our leading magazines and farm journals.

Standard Sanitary Mfg. Co.

General Office and Factory : Royce and Lansdowne Aves.,
Toronto, Ont.

TORONTO SHOWROOM:
55-59 Richmond Street East

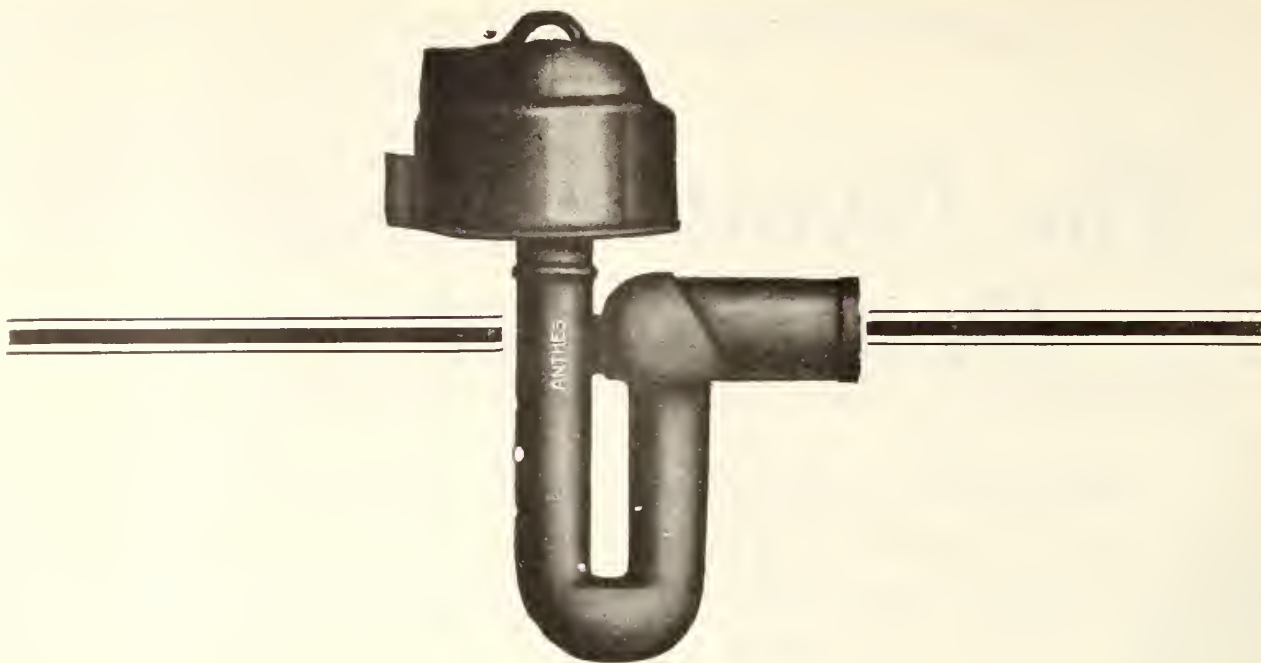
WINNIPEG SHOWROOM:
145 Market Street East

HAMILTON STORE:
20-28 Jackson Street West

MONTREAL:
705 McGill Building

CALGARY:
354 11th Avenue West

VANCOUVER:
860 Cambie Street



“The Heart of the Disposal System”

The Gift of Gab

It is not at all necessary to have the god-like raiment of a movie-actor and the line of talk that Billy Sunday throws to make a whale of a hit selling disposal systems.

Just a plain, straight forward presentation of your case is all that is necessary; straight talk and persistence.

The convenience, comfort and healthfulness of complete indoor lavatory equipment are self-evident things—you don't have to argue about them.

The only sales resistance is the unwillingness of the farmer to separate himself from the necessary funds.

Intelligent, tactful, persistent effort will wear down this resistance.

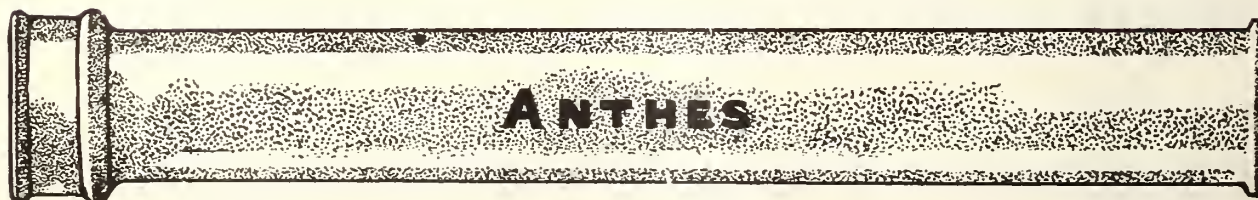
Get the women folk interested—that helps a lot.

Anthes Foundry

Limited

Toronto and Winnipeg

Manufacturers of Cast Iron Soil Pipe and Fittings



SANITARY ENGINEER PLUMBER AND STEAMFITTER OF CANADA

ESTABLISHED 1907

PUBLISHED TWICE MONTHLY

Vol. XVII. PUBLICATION OFFICE: TORONTO, JULY 15, 1923

No. 13

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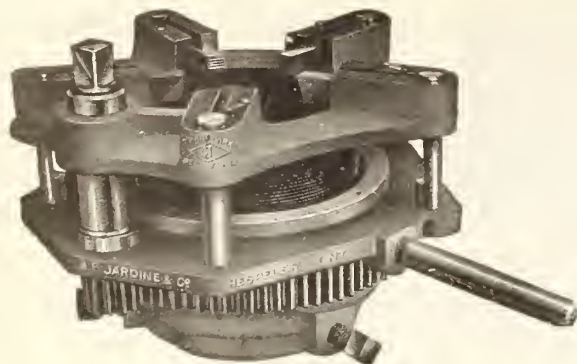
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"Toledo" Geared Adjustable Threading Tool,
No. 2½. Capacity 2½ to 6 in. inclusive.
Weight, 120 lbs.

Made in Canada



One Man Does the Work of Two

Mail this Coupon for a catalogue

NAME

ADDRESS

Sanitary Engineer.

Did You Ever Estimate

How much money imperfect threads cost you?

Jardine and Toledo Pipe Threading Tools

CUT PERFECT THREADS

Any size 1/8" to 12" at one cut.

Ask the man who uses them

Leading supply houses will be glad to give you prices.

A. B. Jardine & Co. Ltd.

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New Birks Bldg., Montreal, Que.

KERR VALVES



No. 34

Thoroughly Tested and Packed Before Shipment

This valve is exceptionally well finished and plated. It is mounted with best quality black wood wheels and fitted with the "Radium Disc." This insures utmost satisfaction to the user.

Ample metal has been provided to take care of strains attending the connecting up of the valve and each valve is thoroughly tested and packed before shipment.

Get These Better Valves From Your Jobber.

The KERR ENGINE COMPANY

LIMITED

WALKERVILLE

Valve Manufacturers

ONTARIO

**Established
1907**

**Circulates
Throughout
Canada**

Sanitary Engineer

Plumber and Steamfitter of Canada

**Published
First
and
Fifteenth
of Month**

Vol. XVII

TORONTO, JULY 15, 1923

No. 14

Says Water Systems Going More to Cities and Towns Than Farms

Speaker Quotes Authorities for Saying Demand for Plumbers' Supplies Will Continue Active Through Summer and Fall With Prices Strong Through the Summer—Suggests Campaign for Modern Plumbing Home and Remodeled Old Home

Address by C. A. KUEBLER, Vice-President Duro Pump & Mfg. Co., before Convention National Association of Master Plumbers

SOME time ago we heard a lot of talk about a depression coming and were advised to be careful and not get caught. This was very good advice for as a result nearly everyone has been watching carefully and not making too many future commitments, so that the chances for a big depression are remote. There will no doubt be a decline in business for the balance of the year, but we feel that if proper sales methods are used that you can hold up your sales volume not only on water systems, but on your other lines as well.

I have picked out a few statements from several sources in regard to general business conditions.

Babson says, "That we never go into a depression when everybody is looking for it. It usually falls upon us when we are least aware."

The feeling in conservative circles is that the situation is more satisfactory because of this check. The pace in March was too fast to be maintained.

Plumbers' supplies—Babson quotes—"Demand should continue active throughout the summer and fall. Prices will remain strong through the summer."

Therefore, we ought all of us feel very good about general business conditions.

Water System Business for the Balance of the Year

We predict the water system business for the last six months of the year will be better than the first six months. Business for first six months is better than any six months' previous period. January and February are usually the lowest months and they are out of the way.

Market for Water Systems

Water system business has been rapidly increasing every month since the lowest point of depression, July, 1920. In the years, 1918, 1919, and 1920, the farmers' business represented quite a large proportion of our business as well as every water system company. You all are aware of what has happened to the farmer and the fact that he has not bought any more than he had to buy for several years. It was, therefore, necessary to develop business more in the cities and suburbs, particularly in the suburban districts. This was done and in spite of the low purchases of the farmer the total sales have been increased considerably over previous years, even more than in the boom period. But the farmer is coming back rapidly, and is a much better prospect now than he has been for some time. Only one out of ten farm homes have water piped into the home. This does not mean that one out of ten has a modern water supply system. The

farmers' increased purchases of water systems will add materially to the present volume. Not over 20 per cent. of farmers have been sold modern electric water supply systems.

As for the suburban building, we predict this is where you will make your money for the next ten years. There is a shortage of suburban homes. People are moving from the cities to the suburbs to get away from higher rent, and to get fresh air and the other inducements that a suburban home affords. This will mean thousands of water systems required as electric current wires are extended nearly everywhere much further out than the city water mains.

In addition to the farm and suburban market, there is the cistern pump installations in hard water cities and towns and summer resorts, but one of the biggest sales possibilities is the small town without a city water plant being served by electric current from a high line, or adjacent city.

Furthermore, the market for water systems is being widened by the ever-increasing distribution of electric service lines. Ever since the war, electric companies and large electric syndicates have made tremendous strides in projecting their lines everywhere.

The chief advantages of a single super-power system are that it provides the nation with the maximum amount of power at the lowest cost and can distribute it to the greatest number of people. This accomplishment will improve the standard of living of everybody. The burden of the housewife will be lifted by electric labor-saving devices. An ideal form of power will be given to the farmer. This will lead industry to seek the country, where rents are low and raw materials accessible. It will then become possible for large numbers of people to earn their living away from the crowded areas, and since electricity will make rural life both comfortable and attractive, we can confidently expect that the people will spread out into the open, where they will find fresh air and health. What does all this mean? It means that electric current will be available everywhere, but water under pressure will not be. This will continue to open an increasingly large field for water supply systems and an increasing market for the other things which follow in the way of modern bathroom equipment, etc.

Small towns without water pressure being electrified from adjacent cities also have many soft water prospects.

Methods To Get This Business

Let me ask you a few questions first. How many of you take advantage of the National Trade Extension Bureau and use all the real sales helps that they have available? (As distributed in Canada by Sanitary Engineer). It does your heart good to see the big steps that the plumbing industry has

taken the last few years, but there is opportunity yet to do much more.

The plumbers in every community and city should get together and work co-operatively—advertising and in every other way. You hear of the electric home, you hear of the Home Beautiful, and every other kind of home but you never hear of the Modern Plumbing Home. Would it not be a good idea to do something along this line?

Also, as you are interested in putting modern plumbing in all classes of homes why not institute a campaign all over the country on a Remodeled Old Home? Get an old home and remodel it, put in modern plumbing equipment, obtain the co-operation of the furniture dealers and others in the city, advertise jointly, and we believe you would develop quite a lot of interest in remodeling old homes and especially in putting in modern plumbing equipment.

How many of you read your trade paper thoroughly? When you have finished do you pass them on to your journeyman plumber, and the others in your employ? You will find many fine ideas and suggestions in these papers. Why not give your journeyman plumber an opportunity, too, to learn more about the business? Why not develop him into a salesman for you when he is out working? If you will develop him and give him an opportunity to be worth more money to you and himself there will be less chance for him going into a business himself. This thought has struck us so forcibly that we have started, as soon as possible, to prepare a sales correspondence course for the use of journeymen plumbers, free.

Municipal Water Plant

Without the municipal water plant, where would the plumber be? It is absolutely a necessity to his life. Without it there would be no need for a plumber. The water systems in the suburbs or country afford the same opportunity for the plumber developing his business as the city municipal plant. Domestic water supply system is the municipal system to the suburban home owner and farmer. It increases your outlet for plumbing material. Therefore, let's increase the size of the outlet.

One of the things that we have never been able to solve and that is the resistance to selling plans that we have found among a certain class of plumbers. Unless the plumbers co-operate and are willing to follow out the plans of selling that are suggested, all the national advertising that we do, or all the millions of letters which we send out to prospects to help them to make sales and all the tons of literature which we send out for distribution, all the millions of people who are seeing the motion picture films, will be of no avail unless you and your associate master plumber follow up the leads and suggestions 100 per cent. to get the water system business.

The plumbing industry has made great strides but there is a goal to reach.

Our part of the goal is to put a water system in every home beyond city water pressure. By so doing, we will do our part in advancing the industry. We feel the surface of this business has only been scratched. The unlimited field and ever increasing size of outlet will create a demand for them that will tax the capacity of every manufacturer making

them and will be looked upon by the plumbing trade as a big part of their business providing a large share of their annual profits. The sale of water systems is daily proving to be a more desirable business for thousands of dealers. Those making a real study of this business and then pushing it hard are reaping the largest rewards.

System Handles Thousand Gals. of Sewage Per Minute

Imhoff System at Burlington, Ont.

Sewer Pumping Station,
Burlington, Ont.

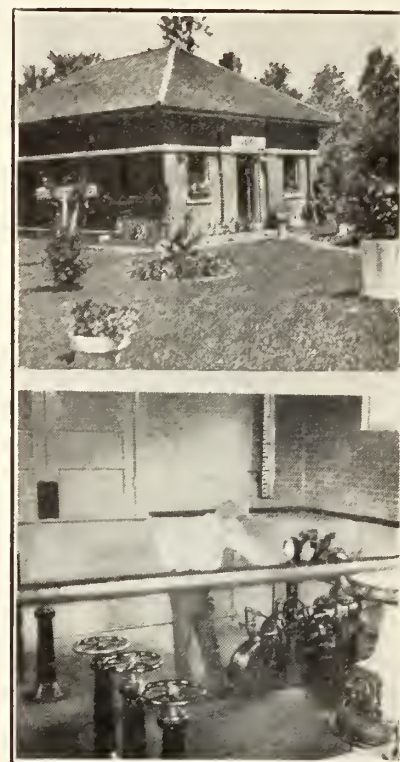
Editor, Sanitary Engineer,

Enclosed find \$2.00 to start me over again on "Sanitary Engineer," which I enjoy very much. I find lots to interest me in your paper. Enclosed find two photos if you are interested, of the sanitary end of our town of Burlington. We have installed two more new pumps not shown in the picture and we are in a position to handle 1,000 gallons per minute. The disposal end of it is the Imhoff System. The whole of this work is in my charge and I am proud to say I am an old Parkdale boy, having been born and raised there.

If you ever travel the Hamilton Highway, stop and rest and look around. You will be welcome here anytime.

Supt. of Sewers, HARRIS MERCER.

R. J. Miller, vice-president and general manager, Pease Foundry Co., Toronto, has returned from a business trip through the West.



Dollar Will be Maximum Tax After August 1

No Cheques or Receipts Will Bear Taxation in Excess of One Dollar—Cannot Use Postage Stamps Any More for Excise Taxes

OTTAWA, Ont.—On and after August 1st, one dollar is the maximum amount of tax payable on cheques, bills of exchange, receipts for money paid to a person by a bank chargeable against a deposit of money in the bank to his credit, express money orders, travellers' cheques or post office money orders.

On and after October 1 postage stamps may not be used in payment of stamp taxes for revenue purposes. Excise tax stamps only may be used, and they may

be bought from any collector of customs or any bank.

The tax on receipts makes taxable receipts for \$10 or upward on post cards, form letters and letters, and this comes into force on and after August 1. The amendment to the act also provides that a receipt liable to the tax shall not, except in criminal proceedings, be given in evidence or be available for any purposes unless it be duly stamped in accordance with the law.

The new sales tax is effective from January 1, 1924.

Jobbing Business Stimulated in Summer by Plumber's Novel Plan

Public Complaint of High Charges for Small Jobbing Work Influenced Sault Ste. Marie Plumber in Starting Out a Truck With Two Men for Such Work—Public Pay Less and Profit Per Hour to the Plumber is Greater

THE PUBLIC COMPLAINS

that during the Summer Months when building is at its height, it is very difficult to obtain a Plumber for small jobbing work. To keep up our reputation for giving service to the public, we have detailed two men to handle jobbing work, exclusive.

Select Plumbing & Heating Co.

797 Queen St.

Phones 1668—Res. 1028w

THERE has frequently developed some difficulty in various plumbing and heating shops in connection with the handling of small jobbing work during the summer months when due to the activity of new building, plumbing and heating engineers are ordinarily pretty busy. Taking advantage of the situation the Select Plumbing and Heating Co., Sault Ste. Marie, Ont. run an advertisement in the local papers as shown on this page, pointing out that the cause for a usual public complaint can be eliminated by taking advantage of the service they have to offer. Incidentally it gives this concern an opportunity to develop business which would otherwise be missed.

Discussing this subject with Sanitary Engineer, C. F. Hitch, proprietor of this business stated:—

"The complaint of high charges for small jobs, and the ridicule in which the trade was held on account of having to go back for tools, etc., caused me to adopt a plan which I find both satisfactory and profitable.

"First, I converted my truck into a travelling workshop, carrying a fixed vise and full kit of repair tools, stocks and dies, soldering outfit, etc. Then a cabinet containing an assortment of fittings, toilet repair parts, etc. A small pipe rack fitted to the side contains a small quantity of $\frac{1}{2}$ and $\frac{3}{4}$ pipe sufficient for connecting ranges, etc. A plunger and sewer rods complete the outfit.

"I then arrange the same way as one would deliver groceries, viz:—take them

as close together as possible preventing long jumps from one end of the city to another. In this way I can have, say, three taps repaired per hour, where under the old system it took a man an hour to do one. In this way the customer pays $\frac{1}{3}$ of the time paid previously. Volume of business of course is a big factor, but I find no difficulty in this, as the people seem to realize I am trying to give service.

"I am beginning to think there is something in the system, as my jobbing business is increasing every month. It should not be forgotten under this plan

to figure upkeep of car in overhead expenses."

The way in which the plan works out is demonstrated in the statement on this page.

Note.—The charge for repairs to a tap under the new plan works out to 70c. It will be seen that there is no difficulty in getting 75c making profit on one man per hour, 90c.

IMPROVE FREDERICTON WATER SUPPLY

Fredericton, N. B.—Definite proposals for improving the city's water supply for fire protection purposes were made to the city council in a report made by Alderman W. L. Jennings, chairman of the water committee. The necessity for increased pumping capacity and the advisability of erecting a reservoir tank of not less than one million gallons capacity on the hill at the back of the city were emphasized and upon suggestion of the water committee a special committee composed of the members of the water committee with Mayor Reid and Alderman G. H. Clark, chairman of the finance committee, were appointed to make a thorough investigation and were authorized to report at the August meeting.

How Profit Per Hour Increased Under This Plan

	Cost	Charge
Previous cost for one hour—		
1 washer . . . . .	.05	.10
Service . . . . .	.90	1.25
	.95	1.35
Profit per hour—40 cents.		
Cost under new plan per hour—		
First job—1 washer . . . . .	.05	.10
Service . . . . .	.30	.60
Second job—1 washer . . . . .	.05	.10
Service . . . . .	.30	.60
Third job—1 washer . . . . .	.05	.10
Service . . . . .	.30	.60
	1.05	2.10

Deducting 30 cents per hour for car leaves profit per hour of 75 cents

Heating and Ventilating Department

Details of Hot Water Heating by Forced Circulation

Advantages Include Variation on Short Notice Due to Weather Conditions—To Obtain Pipe Sizes—Expansion Tanks

Written by W. B. TROTTER, A.M.I.C.E.

THERE are several advantages claimed for the forced hot water system of heating, the first is, that the temperature of the heating surfaces in the building or buildings is at all times under the direct control of the operator and can be varied over a wide range at short notice so that weather conditions can be accurately provided for. If for instance, a chinook springs up all that is necessary is to stop the pump in addition to shutting down the source of the heat, and no excess of heat will be thrown into the building to be dissipated by means of open windows or otherwise. Secondly, a wider range of radiator temperatures is possible than with steam systems; also that no specialties are required, no thermostat, traps, modulation or temperature control apparatus etc., so that the upkeep is low.

Owing to the small sized piping required the cost of the pipe work is moderate, whereas fairly high temperature can be carried in the radiators if required; on excessively cold days radiation need not be figured for more than average cold conditions.

Types of Systems

While the system may be divided into two parts the trunk distributing mains and the buildings, there are two distinct systems that can be utilized in both cases: the circuit system and the two pipe system; either system may be open or closed. If the buildings are heated from a central plant and are strung out in a line the two pipe system would be indicated, but if they were placed so that a loop could conveniently handle them all, then the circuit system would be the most economical. In a two pipe system the mains are reduced as the connections are taken off, while in the circuit system, one pipe only is used, and both supply and return connection are taken off this pipe, which is full size throughout. The supply on a loop system is usually run from the top and the return into the side of the same pipe. Installation costs are less with the circuit system, also frictional losses are lower.

In the individual buildings a circuit system will often be found the most economical to lay out; in this case the

risers and ground floor radiators are usually taken off the main separately, in all cases long sweep bends are used.

Two Pipe Work

Two pipe work can be laid out according to usual gravity practice, but with pipe sizes as given later and if possible a two pipe job should be on the balanced principle so as to give approximately the same drop in pressure between any parts of the system so that no further balancing will be necessary. An overhead system with one pipe drop risers makes a very economical lay out.

It must be remembered that an additional advantage of forced hot water is that grades are of no importance but of course a job graded as is usual in gravity practice will run longer with the pump stopped than a job in which there are numerous rises and dips.

As the temperature of the radiators is usually controlled to suit weather conditions as previously mentioned it is not thought necessary to control each individual radiator with a hand valve, but they are often connected in batteries of three with one valve to the battery, making a saving in the cost of riser connections. The connecting piping between individual radiators should be the full size of the tapping 2 inch. If individual radiators should need control on a loop this can be done as indicated. In two pipe work, if a number of radiators are likely to be shut off at any one time, and so increase the back pressure on the pump, a shunt is provided for as shown. In a circuit or a two pipe system, radiators can be connected below the mains if required and will circulate perfectly. If a large circuit is taken off a one pipe main cir-

cuit, a shunt should be provided to balance the pressure.

To obtain pipe sizes it is necessary to know the amount of water that will be pumped, and this will vary. Usually from 6 to 10 lbs. per sq. ft. of radiation per hour is sufficient, as an average say one U. S. gallon per sq. ft. per hour. As pump capacities are cataloged in U. S. gallons, this is a convenient figure. Where valves are provided in all branches and are carefully regulated the lower figure would be safe while other jobs may run as high as 14 lbs. Of course the temperature drop has to be considered. If less water is pumped the temperature drop will be greater; for instance: assume efficiency of radiator 180 B. T. U. per sq. foot per hour, dividing by 8 1-3 lbs. of water per sq. foot per hour will give a temperature drop of 21.5 deg., which is reasonable.

Velocity

In trunk mains assume 8 to 10 feet per second, circuit mains can be loaded up to 12 feet per second if necessary, smaller pipes in the building say 5 feet per second.

The following is safe:—

4 in. pipe	300 ft. per min.
5 in. pipe	350 ft. per min.
6 in. pipe	400 ft. per min.
8 in. pipe	500 ft. per min.

Then the quantity being known, area of pipe in sq. ft. equals:—

Wt. of water in lbs. per hour

$$V. F. P. M. \times 60 \times 60.3 \\ 60.3 \text{ equals density at } 180 \text{ deg.}$$

In a distributing system the branches to the different buildings from the trunk mains can be smaller than the mains in the building.

1½ in. pipe will carry	2,000 ft.
2 in. pipe will carry	4,500 ft.
2½ in. pipe will carry	6,000 ft.

but mains in building itself will be the usual size.

After laying out the system the pipe sizes can be fixed tentatively from the following tables and then can be checked for frictional resistance. If the frictional resistance is too high larger pipes are indicated:

Sizes	One Pipe	Two Pipes
½	0	45
¾	25	100
1	100	225
1¼	350	450
1½	500	660
2	1,000	1,300
2½	4,000	2,500
3	6,000	3,850
4	12,000	8,400
5	20,000	15,000
6	30,000	23,000
8	45,000	30,000

APPRECIATES IMPROVEMENT

Editor, Sanitary Engineer,

"I certainly appreciate the many improvements which have been made in your paper and look forward to receiving each issue.

"Tom P. Baylis, Moose Jaw, Sask."

Friction when the quantity of water is known and sizes of pipe friction loss per 100 feet pipe:

$$0.33 \times V 1.86 \text{ (in ft. per sec.)}$$

$$10 \times D 1.25 \text{ (in feet)}$$

Valves on mains should be O. S & Y so that the control is indicated at a glance. Radiator valves can be any good valve with a good packing nut.

Branches should be valved perfectly with lock and shield type gate valve where likely to be tampered with.

The end of mains should be vented to the expansion tank where possible; this saves time filling the system.

Heating

Figure size of heater from gallons pumped as before and estimate a temperature drop on a large central station of 30 deg., but 20 deg. is ample for ordinary conditions.

Means

1.—Direct heat of boiler. If this is used boiler should be cast iron type.

2.—Waste heat from boiler, viz., economiser, but this apparatus is expensive in upkeep.

3.—Exhaust or line steam heaters; frequently one of each; two means of heating should always be provided. One pound exhaust steam should heat 28 water, 180 feet radiation per boiler horse power.

Heater

Heater should be vertical or horizontal 2 or 4 pass type.

Control

Air controlled thermostat dial type, or expanding liquid thermostat.

Gauges

On supply and return.

Thermometers

On supply and return—30—260. Also thermometer for outside temperature and possibly a wind anemometer.

Pumps

Figure frictional losses carefully;

APPRECIATES SANITARY ENGINEER

Editor, Sanitary Engineer,

"I certainly appreciate your paper and all your articles dealing with trade matters. I like to read about our friends in the trade. I also like to read your Trade Extension articles.

"Fred McPherson,
"North Battleford, Sask."

feet head loss per 100 feet of pipe equals:—

$$0.32 V 1.86 \text{ (ft. per sec.)}$$

$$10 D 1.25 \text{ (in feet)}$$

as before, but tables are available for frictional losses in all sizes of pipe carrying different capacities.

Type:—Horizontal split case single stage pump, turbine or motor driven. For capacity and head as calculated, average efficiency 70 per cent.

Expansion Tank

Radiation will carry $1\frac{1}{2}$ pints of water per sq. ft. Double this, and to this allow for mains and add trunk mains to arrive at the amount of water in the system. Capacity of tank should be 2 to 5 per cent. of the total water in the system. Tank can be closed pneumatic type in engine rooms, or open type in attic or building. The tank should be fitted with an automatic water feeder and a gauge glass.

Temperature

Closed system 240 deg. F. is maximum. Open system 210 deg. F. is maximum.

Design of piping should provide for expansion and contraction due to high temperatures used. Hangers to hold weight of water and pipe. Use long sweep pipe bends at all changes of direction of mains.

air content of which is about 20 per cent. relative humidity. Nature average considerably above 60 per cent. rarely as low as 30 per cent in a dry desert. 35 to 40 per cent. is a healthful indoor humidity for cold weather. It is quite impracticable to obtain any higher humidity with artificial heating systems. That can be done only by special apparatus."

It is, indeed, pleasing to know that the "special apparatus" to which the doctor refers can be installed in warm air heaters. However, judging from his opinion concerning the healthfulness of 35 to 40 per cent. in the relative humidity for cold weather the average water pan then is not far from the mark of providing properly humidified air, warmed to a comfortable degree. Other systems of heating have no practical means of humidifying the air. In fact, they have nothing to do with the air circulation. Effusing heat as they do with no contrivance for replacing the moisture which they dry up, it can be seen why houses not utilizing warm air heaters illustrate the horror of being drier than a desert. The most significant evidence of man's progress is his control of nature. When he is capable of controlling cold air in winter time and rendering it equally wholesome to breathe as the summer air—illustrated by warm air heaters—is not his progressiveness increasing?

QUESTIONS & ANSWERS

COVERING HOT WATER BOILER WITH ASBESTOS

Editor, Sanitary Engineer:

Please tell me the best way to cover up a hot water boiler with asbestos, showing way to go about it and telling me what material go in it.

—A. B., Lachine, Que.

Answer:—If it is a hot water heating boiler, in most cases they are covered with standard asbestos cement (boiler covering) which is supplied in powder form, put up in 100 lb., bags. One bag will cover approximately 15 sq. ft. $1\frac{1}{2}$ in. thick. It is mixed with water to the consistency of mortar and applied to the boiler, when warm, in layers $\frac{1}{2}$ in. thick. Each coat or layer to be dry before applying the next, and over each coat apply either ordinary bale wire or chicken netting to give it a key. If a hard finish is desired, a small portion of Portland cement can be mixed with the asbestos for the last coat, and troweled to a smooth, hard finish. This application is also used sometimes for the covering of hot water tanks for domestic purposes, but an asbestos removable tank cover 1 in. thick, canvas jacketed, and made to fit exactly the tank is now being turned out. Prices are as follows:

18 gal. tank cover	\$6.00	net each
24 gal. do	6.25	do
30 gal. do	7.00	do
40 gal. do	8.50	do
50 gal. do	9.00	do

The above prices are for standard hot water tanks.

Says Sufficient Moisture in Air Reduces Need for High Temperature

Prominent Doctor Discusses Value of Moisture in Air

IT IS significant to note that doctors of medicine lay great stress on the need for humidity. The necessity of vapor in the air to insure the normal existence of human beings is not denied by anyone. But living away from the original state in which we existed in primitive times, humidifying the air becomes as much a problem—if the proper functioning of the bodily organs is to be considered—as heating. Also, by adequately supplying houses with moisture the percentage of heat required to keep the inhabitants comfortable during the winter time is materially lessened.

In an interesting article a prominent doctor writes concerning humidity:

"Healthful humidity is practical by natural methods of producing water vapor at 65 deg. and further; it is a fact that with humidity at 35 per cent. to 40 per cent., a temperature of 65 deg. is quite as comfortable as 70 deg. with humidity of 20 per cent. relative, such as usually obtains. (At 75 deg. the average humidity is considerably lower than 20 per cent.) To maintain 40 per cent. relative humidity at 70 deg. requires twice the amount of water vapor added artificially that is required at 60 deg. and outside humidity 60 per cent. relative."

Further expressing his views on humidity and its absolute necessity to healthful living, he says: "We live in houses the

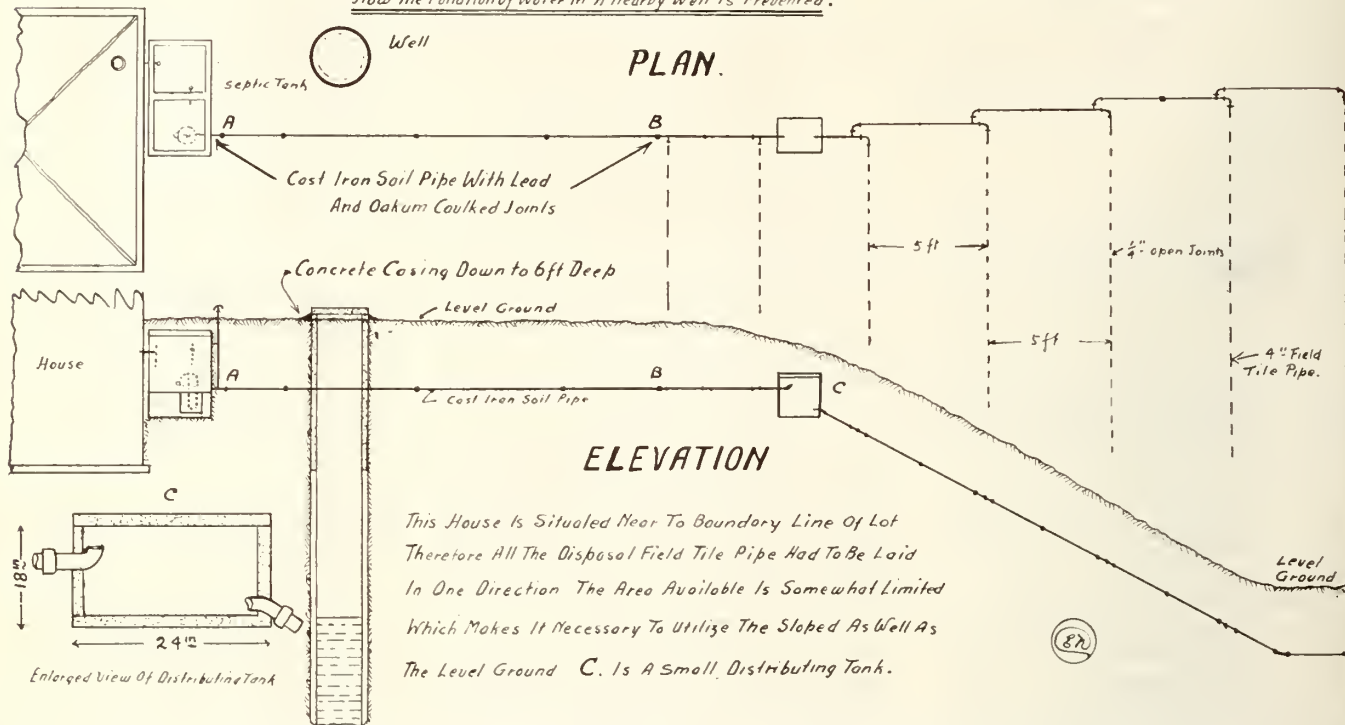
Sewage Disposal for Rural Homes

Pollution of a Water Supply a Serious Matter—Questions Asked and Answered—Problems Unlimited—A Wide Experience or Close Study Necessary to Overcome Conditions in Rural Districts

Written specially for Sanitary Engineer by EDWIN NEWSOME, Sanitary and Heating Engineer, Lecturer on Rural Sanitation, Ontario Dept. of Agriculture.

Installation Showing How A Sewage Disposal Bed Should Be Laid On Sloped & Level Ground.

How The Pollution Of Water In A Nearby Well Is Prevented.



This House Is Situated Near To Boundary Line Of Lot Therefore All The Disposal Field Tile Pipe Had To Be Laid In One Direction The Area Available Is Somewhat Limited Which Makes It Necessary To Utilize The Sloped As Well As The Level Ground C. Is A Small Distributing Tank.

THE experience gained by traveling through the country is, to the average student or engineer, almost invaluable. Backed by previous practical experience, makes it possible to be of much assistance to one's fellow-man. The question put to one to solve, and the conditions to be found all over the province also assists one to enlarge on one's experience.

Problems Solved

The accompanying illustration shows how a septic tank is being installed, and how the polluting of the water in the well is prevented. Let it be strictly and clearly understood that to sell a farmer such an installation cannot always be done as easily as one would like. But as the writer is not selling a thing, and is giving out advice free to all comers, the person to whom the advice is given is easier convinced of the need for such an installation, than if one were interested in selling goods.

For example, a person specifying that a job be done as in the manner described, and that person is selling the goods needed, is at once looked upon as being interested in selling the goods and doing

the job, and therefore there is at once a selfish motive in mind by the person inquiring about such a job. It is all a matter of education, and that is one reason why these articles are written.

Suppose for instance that the reader were to take more note of these installations, show the prospective customer this very article and let him examine the illustration, it would go a long way towards convincing him that such a job would be O. K.

The writer has himself frequently to show his hearers actual quotations from books written by men whose character cannot be questioned, and in that way can convince sometimes the most skeptical.

Now let us turn to the illustration. Here is found a house, a septic tank near the house, a well, a small level area and one with considerable slope. The person requiring the advice explained the situation as follows: said he, "Our house is located near to a party driveway, the well is not far from the driveway or the house and the bathroom is situated in the corner next to the driveway as shown. How can I get a septic tank built, and how must the field tile

pipe be laid so as not to pollute the well."

Use Cast Iron Soil Pipe for Part of Main Drain

By building the septic tank as shown in the plan, placing the fittings in the position described, and by using cast iron soil pipe fittings from points A to B, caulking and lead pouring every joint, there can be no danger of polluting the water in the well.

A still further precaution must be taken by building the septic tank of super-cement, which is absolutely water-proof. Also building a super-cement casing around the well as shown in the elevation plan.

The cast iron pipe must have a fall if possible of about 6 inches in ten feet and inserted into the hub of a 4 inch glazed tile sewer pipe branch so that a few lines of laterals can be laid before the main distributing pipe enters the small distributing tank.

By noting the enlarged view of the small distributing tank, it will be seen that there is a glazed tile bend entering it at the left with the bend turned up

(Continued on page 16)

Plumber Gets Valuable Prospect List

Thoroughly Practical and Effective Method of Getting Information on Which Sales Can Later be Built—Offers Prizes

ONE of the very cleverest ideas that has been suggested to T.E.B. in a long time, suggests a thoroughly practical and effective method of getting priceless information on which sales can later be built.

Just as is usual with the greater number of practical and effective ideas, this one is simplicity itself. Here's the way it works:

Try This Contest

Advertise it as a prize contest. Offer first, second and third prizes to the householders having in use the oldest set of bathroom fixtures in your town or territory.

Make each contestant put their bid for one of the prizes into the shape of a detailed description of the old bathroom outfit which is in use. Call for this detailed description to not only describe the fixtures, but also give exact or, at least, approximate dates when they were installed.

Require each contestant to also give the name of the person who owns the property, and who would naturally be

the one to whom new equipment might be sold.

According to locality and the possibilities of return, the first prize in such a contest could be anything from a complete outfit of three bathroom fixtures, down. Or, the first prize might be a high grade, built-in tub with trimmings, the second prize a pedestal lavatory and medicine cabinet, etc., and the third prize a good water closet combination. In connection with this, make it plain that the prizes are the fixtures only, and "no" legitimate charges will be made for installing them; also that they will only be given and installed in the property described by the contestant.

This matter of deciding what to give as prizes will, of course, have to be regulated by the judgment of the individual plumbing dealer, in connection with his own contest and his own locality.

Arrange for a committee of judges of not less than three, composed of prominent people who will be absolutely impartial. Make it a condition of judgment on contestants that completeness of information and description, as well

as age of the outfit described, will be considered in making the awards.

A contest of this character would be productive of immensely valuable information. In the first place it would give exact information concerning large numbers of dwellings in which there would be real prospects of selling new bathroom fixtures. In the second place this information would come direct from the people themselves, and therefore be more than usually accurate. In the third place the very fact that they entered the contest would be proof that they would like to have new fixtures. It would only remain for intelligent use to be made of this information in order to sooner or later sell a considerable amount in new bathroom fixtures.

The same idea could easily enough be converted to suit the need of a heating contractor. Simply make it a contest for the oldest heating equipment.

Just stop and think what a live mailing list a contest of this kind would give you as a start for sending out sales letters and advertising literature on modern up-to-date bathrooms or heating installations!



Two suggested window displays for plumbers for the mid-summer months of July and August. The underlying idea is "keep cool." On the left, some borrowed furniture gives a view of a lady's boudoir in which the pedestal lavatory and mirror appear as regular equipment, being the "lavatory bedroom fixture." On the right, a ventilating fan is shown, a gas range for cool cooking, and a handy sink with special faucet for dish-washing. Borrowing the few lines needed for these windows enables the plumber to make a window which will stop and interest many passers-by.

Tinsmithing and Sheet Metal Work

Layout of Spiral Conveyor and How to Know Where Bottom Requires Hammering to Remove Twist

Working Drawing and Description Answers Above Question, Recommends First Drawing a Half Plan

Written for Sanitary Engineer by O. W. KOTHE, Principal St. Louis Technical Institute

A CORRESPONDENT asks about the layout for a spiral conveyor, and in particular how to know where the bottom requires hammering, in order to remove the twist which develops in the spiral revolution.

To set out the layout for the conveyor, first draw a half plan, making the stand pipe or shaft 1-13 inch in diameter and the conveyor, which spirals around it, has an external diameter of 2-14. Strike these two semi-circles and divide the outer semi-circle in equal parts. Draw lines to the center and this also divides the inner semi-circle. Now draw a line, as H-T, to equal one-half revolution of conveyor spiral. In this case it is made equal to the great diameter, 2-14, and is set as H-T. Divide this distance in the same number of equal parts as planned. In practice the elevation of spiral is not necessary to develop, since only the heights of one space is desired as h-t for getting the two lengths. But to construct the spiral square over horizontal lines, from each point in line H-T and then erect lines from each point in both semi-circles of plan. Pick out the intersections and sketch a uniform line through these points, and that gives the spiral as shown.

Now observe this spiral raises one space in elevation between each two points in plan. In other words, in the distance 2-4 of plan, we raise equal to the space h-t. In the same way in the space 1-3 of plan, we raise an equal distance h-t. So we pick these spaces as 2-4 and 1-3 and set them as t-4; t-3 in true lengths. Draw lines to point "h" and you have the true girth along the edges of spiral. Now the lines 1-2, 3-4, 5-6, etc., of the plan are true lengths, as they are true horizontal distances and have no inclination. But the dotted line 2-3 of plan raises equal to one space. So we pick this line and set as t-3' and line 3'-h is the true length. To set out the pattern for spiral line on post or stand pipe, observe from the half pattern, a straight line is developed, and the girth between points is the same as h-3. But for the pattern of the bottom draw a

line as 1-2 equal to 1-2 of plan. Then pick girth space h-3 and from 1 in pattern strike arcs as at 3-3. In the same way pick girth space h-4 and from 2 in pattern strike arcs as at 4-4. Then with true lengths h-3' and 2 in pattern as center, cross arcs in point 3-3. Next pick line 1-2 from plan and, using 3 in pattern as center, cross arcs in point 4.

This development is continued, laying out the gore pieces to about two to three feet in length, because that is about all that can be handled in shaping up for assembling, as there is a twist developed in this pattern a similar as shown by the sketch W in the full position. Now for this to fit in a horizontal position,

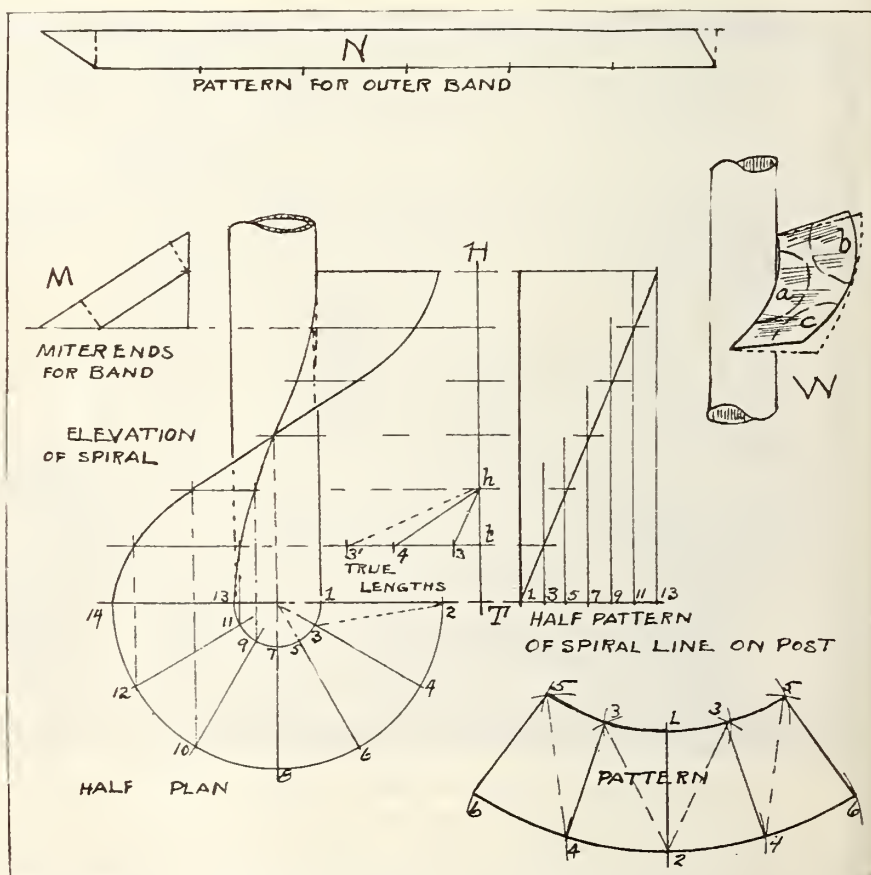
the corners b and c must be hammered to take on the shape of the dotted position. The throat as at "a" also requires some hammering to shape the bottom uniformly. Just how much and where the workman must apply the hammer is a matter that experience alone can dictate. Possibly a coppersmith is more apt at this hammering than the average sheet metal worker, because it is his business to know where and how to hit the metal, in order to shape it.

The outer band is merely a straight strip of metal, as at N, with girth spaces set off equal to h-4 to take in the full length of the sheet. Then the miter ends are cut on, developing them as at M. The lower base cut is for the bottom and the upper cut is for a vertical splice if one is needed. Otherwise just straight cross laps are sufficient and enough strips are filled in to make the band continuous from bottom to top.

SEWAGE DISPOSAL

(Continued from page 14)

This bend if too long should be cut short so as to permit only two inches of effluent to be held back. This bend is necessary so that sufficient effluent re-



Working Drawing Shows Plan for Layout of Spiral Conveyor

mains in the laterals, and to ensure that they are full to their capacity, after which the remainder of effluent will overflow into the distributing chamber and on down to the main pipes and on into the rest of the open-jointed laterals. The distributing tank also takes the place of a bend as it were and takes a little of the pressure from the flushing of the syphon.

Main Pipes Must Follow Contour of the Ground

As soon as the effluent begins to flow into the small distributing tank, it flows on down to the first bend, fills up the third line of open-jointed field tile pipes, up to the branch on the side of the glazed pipe and down to the fourth line of laterals, and repeats the same operation until all these laterals laid on the slope have received their full charge of effluent. Then, if more field tile is necessary to take all the discharge from the syphon or dosing chamber of the septic tank, it will be quite in order to lay more laterals on the level in the same manner as is usually adopted in ordinary level installations.

It is very necessary to lay as many pipes as will take the total contents of the dosing chamber every time the syphon operates. Furthermore, where such a condition as this has to be overcome, it is best not to have the laterals too long, but rather install more lines and shorter ones on the sloped ground. All laterals must, under every condition, be laid perfectly level.

In this particular job, eight persons are occupying the house, so that two hundred and sixteen gallons of sewage must be provided for, meaning that 432 linear feet of four inch pipe is needed to take the whole discharge.

Protect Pump Piping

When such an installation is being made the piping from the well must be given some attention, as well as other service pipes that have to be laid in the ground. It has been found that the best known practice is to make a V shaped trough using one inch lumber well tarred with pitch or asphaltum, and lay the wrought iron or steel pipes in the trough, covering the same also with pitch or tar, etc. This will protect the piping.

Many times such pipes have to be laid in the ground below the frost, but, as the ground has been disturbed, moisture has been known to have seeped down to the pipes and rapid corrosion has taken place, a condition that can result in some of the sewage finding its way with the water supply, making it unfit for either cattle or human consumption.

In spite of the fact that volumes have been written regarding the question of freezing of the laterals, there are still a great number of sanitary engineers as laymen who will insist upon laying the laterals too low down in the ground.

B.C. PLUMBER FINDS PAPER OF GREAT VALUE

"I certainly think the department of Trade Extension is an excellent one and hope to see more of it. I find the technical articles of great value, as one can always pick up some new idea in them. The articles on advertising and office work I find very helpful."

Harvey Brown,
Armstrong, B.C.

The question of climatic conditions is referred to, and where the temperature drops down to a very low degree, the argument that the contents are bound to freeze is maintained. But, as a matter of fact, while it almost appears to be a contradiction, the contents are very likely to freeze if laid too low, for the simple reason that the lower such pipes are laid, the fewer aerobic germs are to be found, and such being the case, the sewage will freeze. On the other hand, seeing that the ground near the surface fairly teems with bacteria, they prevent the freezing of the sewage, no matter how low the temperature is liable to drop.

(To be continued)

STARTLING NEED FOR SANITATION IN SASKATOON

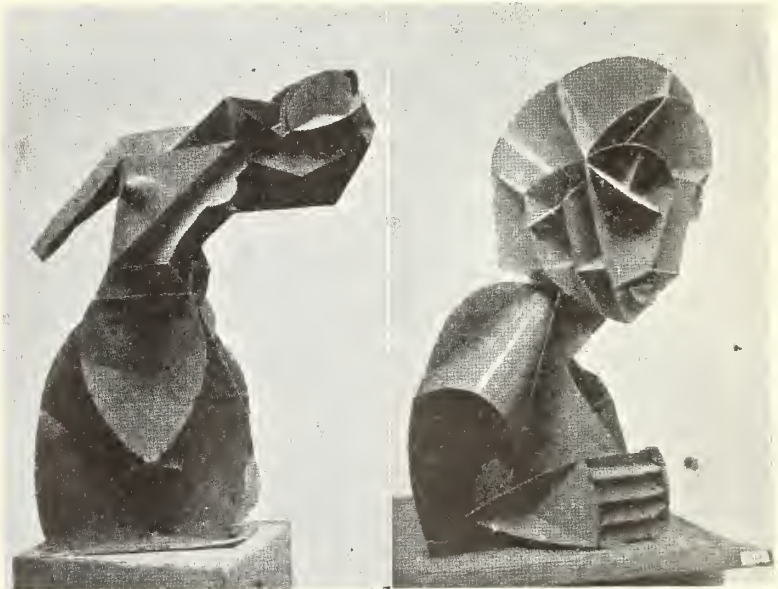
A somewhat startling condition of affairs has been brought to light in Saskatoon, where a report of Medical Health Officer Arthur Wilson shows that of 3,252 houses in the city, fifty five per cent. have no modern convenience whatever, while twenty-two per cent. are not even connected for water and sewer, and it is to this deplorable condition of affairs, coupled with overcrowding in the houses, that the medical health officer attributes the alarming number of cases of typhoid fever which have been recorded during the past ten years.

The report, in part reads:

"It has been estimated that out of a total number of residences or homes in the city 45.4 per cent. are small and necessitate intimate contact—in very many cases, overcrowding of the occupants. To treat infectious diseases in such houses where the little children are in intimate contact, is not safe, because if you get one case you are almost certain to get others.

"In addition to this the number of houses on sewer and water that are not connected is very large in this city. The total number of houses was 3,252. The number connected was 2,542. 710, or 22 per cent. are not connected. 55 per cent. of the total houses in the city have no modern convenience. The number of houses on last year's extension was 60 and only 19, or about one-third, connected with the sewer and water.

A Chance for Ambitious Tinsmiths



The last word in modern art is that of a gabo, a Russian "artist," who calls his work executed in sheet metal "Constructionist" intermetalation. He has been holding a show in Berlin.

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When the Old Channel Goes Dry

OFFICIAL figures on price movements indicate that plumbing supplies are either stationary or gradually increasing in price while farm products are showing further decline. Thus the spread between the two is increasing. Plumbers in rural districts have been having some difficulty talking plumbing and heating equipment to farmers under such conditions, but many of them with considerable success. It appears that in dealing with this type of customer similar aggressive measures will have to be continued.

In analyzing the field it is interesting to note the change which is taking place. In water systems for instance it is evident that the business is going more largely to towns and suburban districts of cities than to the farms. Many plumbers are working up a good business in such districts, realizing that the broad extension of electric power opens up greater possibilities for the sale of this and other such equipment. It is but another indication of the opportunities there are for developing business in new fields when the old channels go dry for some reason or other. More plumbers with resourcefulness to see these opportunities would make things better for the whole industry.

Where Care is Needed

A WELL established plumbing contractor recently made the statement to *Sanitary Engineer* that he could not tender successfully on installations in new houses because of the cut price competition of the transient type of operator. This class of competition has been increasing lately, and there are some aspects of the situation resulting therefrom to which others in the industry should give attention. For instance the risk which wholesalers and manufacturers take in selling to operators whose business methods are against all the established rules and policies of well established businesses, must be reflected on the whole industry to some extent. Bad debt losses certainly add to the general overhead of these branches of the trade.

Much of the mortality among businesses is due to carelessness in granting credit and in this connection contractors would be well advised to take a tip from the plan followed by the credit man employed by the jobber and manufacturer. These men do not waste much time getting after the contractor when they think necessary. He may not do as big a volume as he would by being careless, but what is volume if he has to charge off big losses every year through bad debts?

The present period of prosperity has brought with it its customary quota of questionable customers. But, regardless of unusual conditions, the matter of credits is fundamental. The longest chance the contractor takes is getting his money.

The condition is brought about largely by keen competi-

tion, and the slow payer and the deadbeat are not lax in taking advantage of the situation. They know that if one contractor doesn't take their business another will, so it becomes a process of elimination.

Exchange of credit information is very desirable among business men in a community, and to-day it is being worked with success in many large cities through the local association. It can be handled with success in any town or city, regardless of size, and become a big factor in progressive association work. Done collectively, it is an effective means of shortening the long chance.

Will Bring Improvement

THE success or otherwise of plumbing business in many parts of Canada is very closely associated with conditions in the agricultural sections. For this reason farm conditions are being watched very carefully just now. Those in close touch with the situation are of the opinion that there is every likelihood of a bumper crop in Canada this year with indications of better prices than last year. This is expected to bring a greater measure of prosperity in rural sections than has prevailed for some years, the good crop of last year enabling farmers to merely clear off a part of indebtedness and leaving them still unable to exert their full buying power.

Sanitary Engineer has secured an official report on crop conditions throughout Canada, summarized as follows: Manitoba—Crop late but healthy and vigorous, growing satisfactorily. Alberta—Crop uniformly good over entire province. B. C.—Small fruits crop largest on record. Grain crops in excellent condition. Root crops promise well. Ontario—Conditions generally favorable. Saskatchewan—Everything in ideal condition. Nova Scotia—Crops growing rapidly with promise of good yields. In New Brunswick and Prince Edward Island, the season is late and conditions to date just fair. It will be seen, however, that in most provinces of Canada including all those with large areas, that there is good ground for expecting a bumper crop. In expectation of this plumbers in many parts of the country are reported by wholesalers to be increasing their bookings of fall and winter goods. The realization of the expected crop will help to improve conditions throughout the whole industry of Canada.

FEW THINGS there are that escape sales tax, and with the increase in the percentage of this tax it will likely be made more inexorable than heretofore. In the dying moments of the last House of Commons session, a question was asked by one member. He found that sales tax was applying to the purchase of the Union Jack and asked if this was in accordance with the views of the House. The Minister of Finance, with his usual wizardry in finding ways and means of revenue production, answered that the taxing of the Union Jack was a symbol of the enforcement of the laws of the country. At any rate merchants think there is less to cheer for under the new regulations and as result there may be less "flag-waving."

AN IMPORTANT angle to business success is the need of going after collections. There are millions of dollars on the contractors' books that could be collected if they would go after it systematically. These accounts are good but it takes a certain degree of persistency to get them to "come across." Every effort must be made by letter, telephone or in person. Oft times you hear the contractor say—and this is particularly true in the small town—"I don't like to offend them, because I need their business." But what good is their business if they don't pay their bills?

MINUTE MESSAGE

Number Eighteen

Written for "Sanitary Engineer" by FRANK STOCKDALE
Management Series



Plenty of Feed—But Looking at It Doesn't Make Him Fat

THERE'S many a "starved" merchant with plenty of sales going through his store. Starved because there are no profits.

Sales and profits are not always found together.

You never find profits without sales but you do find sales without profits. Quite often, too, sales go hand in hand with losses.

Low prices will sell goods, there's no argument there, but—

What's a sale without a profit?

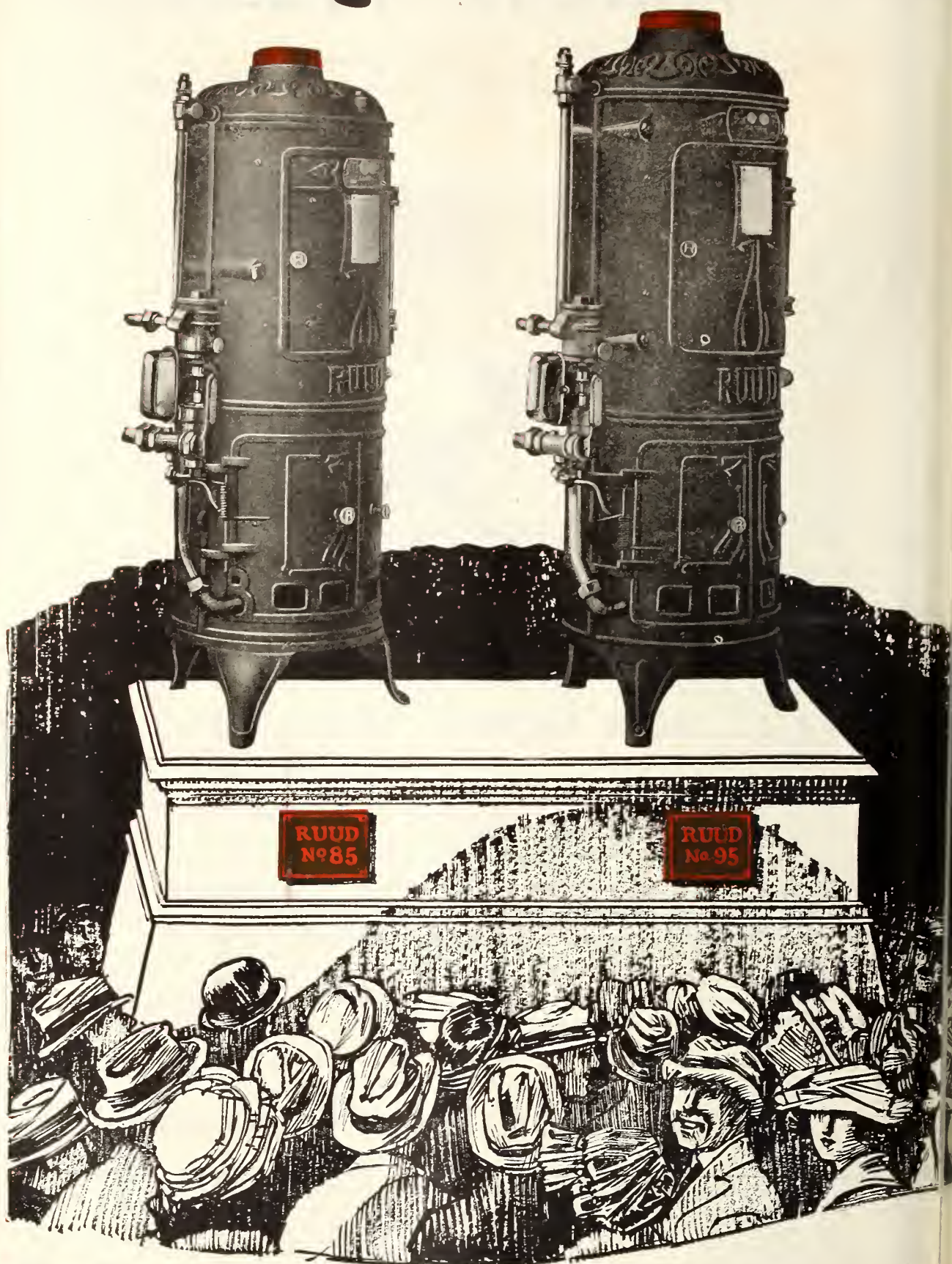
It will take more than low prices to make a business return a profit that fattens the purse of the owner.

Put a bottom in the "manger." Call it management.

THINK IT OVER--APPLY IT TO YOUR BUSINESS

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in the Plumbing Trade in Canada.*

Keep Mid-Summer



Alive With The **RUUD 95**



SELL the great untouched, unsold small home market with the Ruud 85 and 95, the new super-quality automatic water heaters.

Let these two units lead your attack for mid-summer business.

The small home owner takes no extended summer vacations; he can be seen; he can be sold.

The Ruud 95 Work Plan tells how to sell him—tells how he has been sold by others.

It shows how your automatic water heater sales can keep pace with the thermometer's rise—how to substitute profit for the usual mid-summer sales depression.

A simple plan, easily followed—a sales producer, proved in actual tests—write for it.

Simply write "No. 95 Work Plan" on your letterhead and send it to us.

Ruud Manufacturing Company

**474 Bathurst Street,
Toronto, Ontario**

News Notes From Coast to Coast

BUSINESS CHANGES

Montreal.—Stewart & Clarke, plumbers, have dissolved partnership.

Montreal.—Debien & Berthiaume, plumbers, have dissolved partnership.

TAKES NEW PREMISES

Goderich, Ont.—John Baker, plumber and tinsmith, has leased new premises.

Amherst, N.S.—R. G. Jenkins, local tinsmith, has returned from his honeymoon and intends transferring his tinsmith business to River Hebert as soon as he gets his building completed.

EXTENDS BUSINESS

Orillia, Ont.—B. H. Mariner, plumber, has added a hardware stock.

APPLIES FOR PLUMBING SHOP

G. Hamilton, Toronto, has applied for an amendment to Residential By-law to permit of plumbing shop in basement, 1308 Lansdowne Avenue.

MOVE INTO LARGER QUARTERS

The Chamberlain Desolvo Co. Ltd. has moved from its old offices at 35 Richmond Street to its new quarters at 30 Church Street, Toronto.

OBITUARY

Harold A. Lounds, aged 51 years, well-known Halifax plumber, passed away at the Morris Street Tuberculosis Hospital, Halifax. He was predeceased by his wife some years ago and is survived by one son, Harold F. Lounds, who resides in Halifax.

INCORPORATION

J. L. Buchanan, Ltd., head office, Toronto, capital \$100,000, to deal in plumbing supplies.

Dominion Radiator and Boiler Company Ltd., head office Toronto, capital \$3,500,000 to manufacture and deal in all appliances for changing temperatures including boiler furnaces, stoves, grates, pipes, refrigerators, vacuum cleaning machinery, etc.

CANADIAN INCORPORATIONS

Stratheona Potteries Ltd., incorporated with head office in Montreal, and capital of \$1,000,000, to manufacture all kinds of potteries, wares and material incidental to the trade of sanitary engineers, including tubes, pipes, sanitary apparatus, etc.

PERSONAL

Chas. E. Morrison, secretary-treasurer James Morrison Brass Co., underwent an operation for appendicitis and is reported to be making good progress toward recovery.

Doings in the Plumbing and Heating Industry

Signal honor comes to Claude E. Burnett, president of the Duro Pump & Mfg. Co., Dayton, Ohio, who has just been elected president of the Dayton Chamber of Commerce. Dayton, a city of 165,000 population, is one of the best advertised and fastest growing cities in the country.

TALK CENTRAL HEATING

Strathroy, Ont.—Strathroy business men are talking up a big steam heating plant to heat the stores and business places of Front and Frank streets, and thus lessen the cost of heating to the patrons.

TRUCK WITH PLUMBING WARE GOES THROUGH BRIDGE

A large 5-ton truck loaded with plumbing ware from Port Hope Sanitary Mfg. Co., crashed through a bridge near Whitby, precipitating the truck and its load into six feet of water. The load was salvaged.

GAS CONVENTION IN AUGUST

The sixteenth annual convention of the Canadian Gas Association will be held in Ottawa on August 23 and 24. Headquarters will be made at the Chateau Laurier, and the various officers are doing their utmost to make the meeting a great success. Papers will be read of interest to all branches of the gas industry.

LARGE SHIPMENT OF FURNACES

St. Thomas, Ont.—L. Udell, heating contractor and distributor of furnaces, received this week a carload of 24 all-cast furnaces. In the shipment to St. Thomas, the castings of the 24 furnaces weighed fourteen tons. Mr. Udell is now busy placing the furnaces and reports a busy time.

SANITARY ENGINEER POINTS TO REMEDY

Kitchener, Ont.—That copies of the report stating the findings of A. W. Berry, the sanitary engineer who investigated the cause of the pollution at Schneider's Creek on June 14, be forwarded to the management of the factories whose waste products have contaminated the creek, was decided at the monthly meeting of the board of health. It is expected that the firms concerned will adopt the suggestions of the engineer as to means in which the nuisance can be eliminated. A recommendation to the city council that the creek be cleaned out was also passed.

PLUMBERS ASK FOR CONFERENCE

Halifax, N.S.—The journeyman plumbers asked employers for a conference in connection with a working agreement for this year.

TENDERS WANTED

Quebec.—Tenders are being called by the Department of Public Works, Ottawa, for the plumbing and the heating and electric lighting systems of a toilet building at the Champlain Dry Dock, Harbor of Quebec, Que.

CONTRACTS AWARDED

Windsor.—The plumbing installation in the new Windsor-Walkerville technical school has been completed. Two hundred and twenty-five radiators make up the heating system for the large building, being supplied by a forced hot water system. The equipment was supplied by the Gurney Foundry Co., Toronto, installation being made by W. J. McGuire, Toronto, at a tender of \$36,000.

CONTRACT AWARDED

Welland.—C. R. Hagen, heating and plumbing engineer, has been awarded the heating contract for the new plant of the Welland Cotton Mills. The system will be the most modern installed in this district, embodying all the latest improvements in steam heating. This firm also has contracts for the plumbing and drainage in the Welland Cotton Mills and the Welland Packing Company and for the metal work on the new market building now under construction.

PREPARES PLAN OF SLUDGE DRYING BED

City Engineer, F. G. Ure, of Woodstock, Ontario, has placed before the city council of that municipality a plan for the preparing of a drying bed to receive the sludge from the sewage disposal plant in the west end of the city. At present much annoyance is caused residents of the district by the odors of the sludge deposited on the flats and near the city's gravel pits.

WATER FOR 200 HOMES SOON

Port Credit, Ont.—Applications for the installation of water services are pouring into Town Clerk Gordon's office, and already there are over 100 houses on the list to be supplied. The applications are coming in steadily, two and three each day, and it is expected that by the time the water is turned on 200 homes will be on the system. Already the filters have been tested.

Gangs of workmen are being kept busy putting the services into the houses.

PORT CREDIT SYSTEM COMPLETE

Port Credit, Ont.—Port Credit water system is almost completed, and workmen are busy doing the finishing jobs. It is expected that the pipes and the tanks will be tested this week, and if found satisfactory the official turning on of the water will be held next week. The system was installed at an estimated cost of \$110,000.

PLUMBERS TEAM IN DRAW

Windsor, Ont.—After entering the fifth frame with a five run lead and the old ball game practically tucked away in the bat bag, Eddie Nantau, twirling for the Plumbers, blew up like a kite and his support promptly followed, the champion Kelsey-Wheel aggregation chasing over five runs before the side was retired in the fifth and tying up the last game. The score was 7-7.

WEIRD OBSTRUCTION IS FOUND IN BRANTFORD WATER PIPE

Brantford.—Described by secretary F. W. Frank of the water commission as looking like a dead dog, an interesting obstruction, taken from one of the galleries which feeds the city's pumping station in the Holmedale, now reposes in the office of the commission. A small root, with many rootlets, found a lodging in one of these pipes some time ago, and from that date until taken out of the pipe during the cleaning process now going on, has been collecting, by means of its network of rootlets, a considerable mass of fibrous growth. At the present time it is nearly dried out, but has an area well over a foot square, and is two or three inches thick. The obstruction, when wet, swells up like a sponge, and is capable of blocking a 24-inch pipe.

RECOMMEND ADOPTION OF BIG SEWERAGE SCHEME

Toronto.—City Solicitor Johnston advised the Board of Control that the proposed new drainage and sewage disposal system for North Toronto could not be carried out on the initiative plan, but would have to be put through as a forced local improvement. With that point to guide them, the board next directed attention to the two propositions submitted by Works Commissioner Harris. The first provided for the construction of an entirely new and comprehensive system for the whole district at an estimated cost of \$11,125,525. The other scheme contemplated the utilization of the existing system as constructed by the old municipality of North Toronto, reducing the cost of the new system to \$9,811,170.

After considerable discussion the board decided to recommend to council adoption of the smaller scheme, as it was thought the existing sewers would, in many cases, provide ample accommodation for a number of years.

PLACE COMFORT STATION

Regina.—After the matter being held in abeyance for many months, the city council has taken action in connection with the placing of a public comfort station in the basement of the city hall, and has authorized the city commissioners to secure plans and specifications for the station at an approximate cost of \$8,000.

CHANCES FOR PLUMBING EQUIPMENT

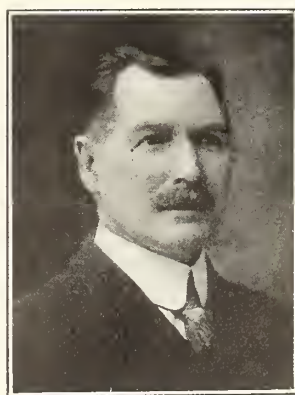
St. John, N. B.—Indications are that a new railroad station will be built in St. John, N. B., by the Canadian National Railways, following the recent visit of officials from headquarters. This will mean a fine plum or plums for some plumbing and heating contracting firm. A new railroad station will also be built in Fredericton, N. B., by the Canadian Pacific Railway.

PLUMBING ACTIVITY IN PETERBORO

Peterboro.—Plumbing activities for Peterboro for the month of June, as set forth in the report of Plumbing Inspector A. G. Methers, are as follows: baths 9, basins 15, water closets 17, sinks 19, laundry tubs 2, dentist's cuspidor 1, floor drains 3, water tests 35, smoke tests 20, layouts 4, miscellaneous inspections 38. There were 41 certificates issued, and during the month 14 outside closets were closed, bringing the total for the year up to 61.

IS SALES MANAGER HAMILTON STOVE & HEATER CO.

Chas. J. Taber has been appointed sales manager of Hamilton Stove & Heater Co., Hamilton, Ont. He has had a wide experience in the heating business, and has travelled through practically all parts of the Dominion. Previous to joining this firm he was employed with some of the largest American manufacturers. He now has full charge of sales of stoves, furnaces, radiation, etc., for Canada.



CHAS. J. TABER.

Appointed sales manager Hamilton Stove & Heater Co.

DAUGHTER OF WELL KNOWN SANITARY ENGINEER SUCCUMBS

Moose Jaw, Sask.—Miss Dorothy Baylis, eldest daughter of Mr. Tom Baylis, sanitary and heating engineer and executive member of the Saskatchewan Provincial Society, D. S. & H. E., died at the home of her parents after suffering about a week from anaemia. Mr. Baylis submitted to two operations for blood transfusion in which a pint of his blood was injected into his daughter's veins on each occasion.

This sudden demise is the more unfortunate as Mr. Baylis had just completed arrangements to take his family on a tour of the British Isles. The family would now have been on their way to England, if this illness had not intervened.

Pipeless Furnaces Have Big Run in St. John

ST. JOHN, N.B., July 12.—Manufacturers have been doing a lot of advertising of pipeless furnaces in local papers in the maritimes and especially in St. John and vicinity. Sanitary Engineer interviewed a large building company, Armstrong & Bruce, Ltd., who are erecting a large number of houses in a residential section of St. John, learning that they were using only the pipeless furnace in their dwellings. R. H. Bruce, of this company, stated that his firm had built five houses during the summer of 1922, and that pipeless furnaces had been installed in all of them. The buyers of the houses were all well satisfied with the heating qualities of the pipeless furnace, and claimed that they were the most economical system of heating that they had ever had experience with. Some of the purchasers stated that they were able to heat their homes at practically the same cost as with a self feeder, but with not half the inconvenience and dirt. Mr. Bruce added that, in view of the great satisfaction expressed by the purchasers of these houses, his company was installing nothing but pipeless furnaces in all of their ten houses now under construction. As well as giving satisfaction to the purchasers, it made possible a lower selling price on the houses. In the course of a few years there will be a large residential locality in St. John with only pipeless furnaces to supply the necessary heat, as it is the intention of this company to carry out their heating policy in all houses constructed by them.

Messrs. Philip Granan, Ltd., a firm located in the north end stated that in 1922 they sold and installed more pipeless furnaces than ever before in the history of the company, and that property owners were even taking out old heating equipment and making the change, as they considered the saving and efficiency more than offset the cost of the alterations.

Twenty Years - Ago -

Following items are reproduced from trade paper files of the MacLean Publishing Co., of July, 1903:

"Now that the fame of the Toronto Master Plumbers' Baseball Team is known, challenges are coming fast, but the worthy secretary, Geo. Clapperton, says he cannot allow his team to play two Saturdays running."

"The annual convention of the National Association of Master Plumbers and Steam Fitters of Canada was held on July 1, presided over by Frank Powers, at Montreal. G. A. Perrier, secretary, was detained through the death of his mother and J. Paseoe Bell acted pro tem.

"Ottawa City Council, which has debated the legality of enacting a municipal by-law governing plumbing trade, have at last framed and passed such a by-law. No vent pipe less than 4 inches in diameter shall pass through the roof, all pipes must extend at least 3 ft. above the roof and be 10 ft. from any opening."

"Resolutions re permanent secretary were referred to W. H. Meredith, R. Ross, J. Lamarche, H. Mahoney and P. C. Ogilvie. Re amendments to Halifax resolutions, to J. McKinley, J. Thibeu, J. D. Chisholm and W. Watson; re obtaining legislation along sanitary lines to H. A. Knox, Geo. Kinsman and L. Le Grow."

"Others present included D. J. Shea, Fredericton; Geo. Ross, Brockville; W. G. Butler, Perth; Geo. A. Wootten, Halifax; F. Maxwell, L. Le Grow, G. Cooper and F. Armstrong, Toronto; H. A. Knox and J. G. Johnstone, Ottawa; Representatives of supply houses included, P. McMichael, manager Dominion Radiator Co., Ltd., Toronto; Geo. F. Clare, of Jas. Robertson Co., Ltd., Toronto; W. N. Forbes, Wm. Stairs, Son & Morrow, Ltd., Halifax."

"The following responded to the roll call: President F. Powers, Lunenburg, N. S.; Past President John McKinley, Ottawa; Vice-President P. C. Ogilvie, Montreal; Treasurer Jos. Lamarche, Montreal; Vice-Presidents—Ontario, W. H. Meredith, Toronto; Quebec, M. Thibeu, Montreal, pro tem; New Brunswick, Wm. Watson, Moncton; Nova Scotia, Geo. Kinsman, Halifax; Cape Breton, J. D. Chisholm, New Glasgow; B. C., H. Mahoney, Guelph; Manitoba, R. Ross, Toronto.

Catalogs and Booklets

Those interested in any of the catalogs described below can procure a copy of the same by writing direct to these firms. Mention that you noticed this in Sanitary Engineer.

WATER SERVICE BOOKLET

The Dayton Pump and Manufacturing Co., of Dayton, Ohio, have sent us a copy of a booklet called "Dependable Water Service." This booklet is very well gotten up in colors and it is intended to be distributed among the trade. They inform us that copies will be supplied from their Dayton office upon request.

FINDS VALUABLE ARTICLES IN "SANITARY ENGINEER."

"We like your journal and find very many valuable articles in it."

Cowans, Brantford, Ont.

THE GURNEY FOUNDRY CO., LTD.

Heating Catalog Section D-23, which takes in their line of pipe and pipeless furnaces. This booklet contains thirty-six pages and is made of a very durable and high-class paper. The illustrations are very clear and aid the descriptive matter greatly. Full descriptions are given of each model; also a complete description of their cold and hot air registers.

DURO WATER SYSTEMS

A new 40-page general dealer catalog on Duro water systems is just off the press, announces The Duro Pump & Manufacturing Co., of Dayton, Ohio. This catalog is bound in imitation leather and contains helpful data and information covering the installation of deep and shallow well water systems under varying conditions. Duro also announces the distribution of their revised price sheet "B", which is now being mailed to the trade.

THE GALT STOVE AND FURNACE CO.

A new catalog has just been issued by The Galt Stove and Heater Co., of Galt, Ont., which illustrates their lines of furnaces of different descriptions, pipeless and otherwise, in a very fine manner. This volume is number seven edition and contains forty pages. The paper used in this catalog is of the finest, and the clear type, well laid out illustrations with complete description of goods, tends to make this copy one that will be of great service to dealers handling this line of goods.

They have also got out two booklets which are titled, "Comfort" and "Unbiased Opinion," both of which should go a long way towards increasing the sales of the Galt lines.



LOOKED THE PART

"My dear sir," said the salesman, courteously, as he handed the customer his package and no change, "you will find that your suit will wear like iron."

And sure enough it did. The man hadn't worn it two months when it began to look rusty.—S.E.

GOT FOOLED

The stingy farmer was scoring the hired man for carrying a lighted lantern to call on his best girl.

"The idea," he exclaimed. "When I was courtin' I never carried no lantern; I went in the dark."

"Yes," said the hired man sadly, "and look what you got."—H.M.

T. G. GRIFFITH & CO.

T. G. Griffith & Co., of Toronto, manufacturers of sanitary equipment for homes, schools, factories, railroads and camps, have issued a new catalog. This book gives a lot of useful information on toilets for districts where there are no sewers, as well as other smaller fittings in the sanitary line. A fine line of sanitary drinking fountains is also described. Throughout the whole catalog, each article is illustrated with fine, clear cuts which materially assist in the description.

"IT IS A DANDY"

"We are very much pleased with Sanitary Engineer in all departments. It is a dandy."

W. C. Hibbert, Carman, Man.

NOT SO SURE

A couple of promoters had just emerged from the grocery store.

"I believe," said the first, "that we've enlisted his support for our scheme."

"I am not certain of that," said the other; "he seemed very suspicious."

"Suspicious! Why do you think that?" demanded his companion.

"Didn't you notice how he counted his fingers after we shook hands with him?"—H.M.

HE WALKED OUT

Little Johnny was seeking information from his father.

"Father," he asked, "freight is goods that are sent by water or land, isn't it?"

"That's right, son."

"Well, then, why is it that the freight that goes by ship is called a cargo, and when it goes by car it is called a shipment?"

And then Johnny wondered why father put on his hat and sauntered outside to get the air.—H.M.

NO SAMPLES

At an advertising convention, the story was told of an advertising salesman who, upon arriving at a certain hotel, was met by the porter who wanted to know how many trunks he carried.

"I use no trunks," the salesman replied.

"Oh, I thought you wuz one of these traveling salesmen," said the porter.

"I am, but I would like you to know that I sell brains."

"Well, you are the furst travelin' fella I seen this season who ain't carryin' no samples."—S.E.

QUICK WORK

He was part of the advance guard of the annual American invasion and passed the huge West End hotel with the Londoner who was showing him round.

"How long did it take you to put that up?" he asked.

"Oh, about three months."

"Gee! We'd do a job like that in three days in New York."

Nothing more until the houses of Parliament. Then: "Say, that place looks mighty good to me, what is it?"

"Don't know," said the Londoner. "It wasn't here when I crossed the bridge last night."—S.E.

DOING NOTHIN'

They had just pulled the cork when a lantern entered the room, followed by a lengthy individual with whiskers.

"By gum, I've ketched ye," shouted whiskers, flashing the star attached to his galluses. "What are you two a'doin here?"

"Nothing," stammered Jones, covetously glancing at the bottle on the table.

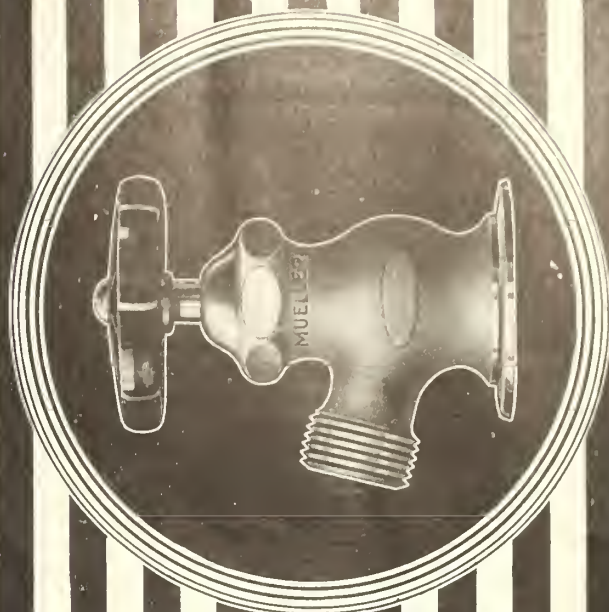
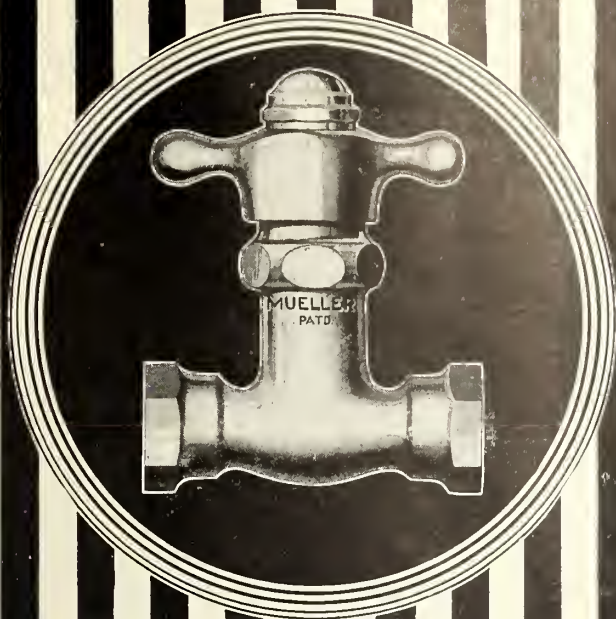
"N-nothing," echoed Smith, covetously glancing at the bottle on the table.

"Well, what are ye two aimin' to do?" persisted whiskers.

"N-nothing," said Jones.

"N-nothing," said Smith.

"Whee! !" said whiskers. "Then hold this lantern."—S.E.



MUELLER Stop Cocks, Sill Cocks and Basin Cocks

The wide range of design, the uniform quality and the tested worth of each article make it a pleasure for plumbers to sell and install **MUELLER** goods. The precision with which every thread and joint is finished insures satisfaction to the user and saves time for the plumber. See A-1240, A-1245, A-1513 and A-1517.

Write for catalog and prices. Mail orders given immediate attention.

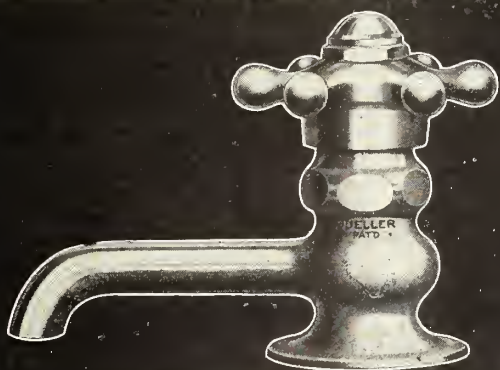
H. MUELLER MFG. CO., LIMITED, SARNIA, ONT.

Water, Plumbing and Gas Brass Goods and Tools.

American Factory at Decatur, Illinois, U. S. A.

Branches, New York and San Francisco

Mueller Metals Co., Port Huron, Mich., Makers of "Red Tip" Brass Rod ; Brass and Copper Tubing
Forgings and Castings in Brass, Bronze and Aluminum ; also Screw Machined Products.



Market Conditions and Tendencies

Price Trend on Sanitary and Heating Supplies

Markets at a Glance

AN IMPROVEMENT in business has taken place during the past week. Price changes have been few and far between. Oakum and cotton waste have had very good sales, as also have eavestrough and conductor pipe, especially O. G. type of trough and the common lines of pipe.

The scrap market still continues to be dull, very little trading taking place; the only bright feature of this market is that during the last two days metals have strengthened somewhat, this being

the only encouragement in this line for some time past.

Copper ingots give out stronger tones and a rise in prices is possible.

Still weaker tones are manifest in connection with prices on pig iron, the mills are not getting the bookings which were expected, and good quantities of iron are in stock at the furnaces.

Collections are reported to be a little easier.

Montreal Markets

MONTREAL, July 12.—Prices which have been in effect for some time back have been maintained almost without exception this week, the scrap metal market being the only market in which a decided weak tone is to be found and while prices have not altered this week it is reported that indications point to a much weaker market in the very near future. The eavestrough and conductor pipe trade is reported good with slight slackening off due to heavy spring buying but dealers anticipate a revival of trade in this line shortly.

In the ingot metal market an improved tone is shown this week with indications that the general decline is fairly well completed.

Collections are reported as fair and business generally is reported as being quite seasonal.

NO PRICE CHANGES IN BOILER TUBES

Montreal.

No price changes are noticed in the price of boiler tubes this week; they are being quoted locally as follows:

BOILER TUBES—

	Seamless	Lapweld
1 inch	20 00	....
1½ inch	22 00	....
1¾ inch	21 00	....
2 inch	24 50	24 00
2½ inch	21 50	20 00
3 inch	24 50	23 00
3½ inch	29 00	24 50
4 inch	34 00	31 00
4½ inch	39 50	35 50
5 inch	50 00	45 00

Prices, per 100 ft., f.o.b. Montreal.

ENAMELLED WARE TRADE IS STILL REPORTED LIGHT

Montreal.

Trading in enamelled ware lines is still reported as light, but dealers report that indications are for a revival of trade shortly, in view of the heavy amount of building under construction in the district. Local quotations are as follows:

Sinks, flat rim—	1 only	2 only	3 only
16 x 24	\$ 7 50	\$ 7 40	\$ 7 30
18 x 30	8 70	8 60	8 50
20 x 30	9 90	9 80	9 70
Bath tubs, roll rim, 4, 4½, 5 feet, 24 to 30 in. wide			51 40
Bath tubs, 5½ feet,			57 10
Lavatories—			
17x19 in. Apron F139 or P4045			15 30
19x24 in. Apron F154 or P3845 or P3847			23 60
19x21 in. Apron F169 or P4205			17 60
17x19 in. Roll rim. F241 or P4345			12 60

Less 30 per cent.

BUILDING ACTIVITIES INCREASE SALES OF PORTLAND CEMENT

Montreal.

Continued building activity is noticed; resulting in an active trade in cement. Prices remain locally as follows:

CEMENT—

Car load lots, per bag, F.o.b. steam cars	0 86
Per Bag, delivered	0 94
Less car lots, per bag, F.o.b. yard	0 94
Per bag, delivered	1 04

Rebate of 20 cents for empty bags.

EAVE AND CONDUCTOR PIPE TRADE REPORTED GOOD

Montreal.

Dealers in eave and conductor pipe report seasonable business, with the sale of conductor pipe slackening down, due to heavy Spring buying, but with indications that the demand will be increased shortly. Local quotations are as follows:

EAVESTROUGH—

O. G. round and half round, per 100 ft. 3 in., \$16.90; 10 in., \$18.70; 12 in., \$22.20; 15 in., \$35.50; 18 in., \$45.00.

O. G. Square bead, per 100 ft.: 8 in., \$15.90; 10 in., \$17.70; 12 in., \$21.20; 15 in., \$34.50; 18 in., \$44.00.

Discount 65 and 5 per cent.

CONDUCTOR PIPE—Round, Plain and Corrugated, per 100 ft.: 2 in., \$18.40; 3 in., \$22.30; 4 in., \$29.60; 6 in., \$48.00; 8 in., \$58.80.

Discount 15 and 5 per cent.

CONDUCTOR ELBOWS—

Plain or corrugated, price per doz. 2 in., \$5.25; 3 in., \$6.00; 4 in., \$10.50; 5 in., \$24.00; 6 in., \$29.00.

Discount 50 and 10 per cent.

SOIL PIPE AND FITTINGS IN FIRM MARKET

Montreal.

No change has taken place in discounts on soil pipe and fittings. Dealers report a fair amount of activity in these lines. Local discounts quoted as follows:

SOIL PIPE—

2 and 3 inch	20%
4 inch	25%
5 and 6 inch	20%
8 inch	net

FITTINGS—

2 to 6 inch	37½%
8 inch	net

MINOR PRICE ADJUSTMENT ON STANDARD OIL CLOSETS

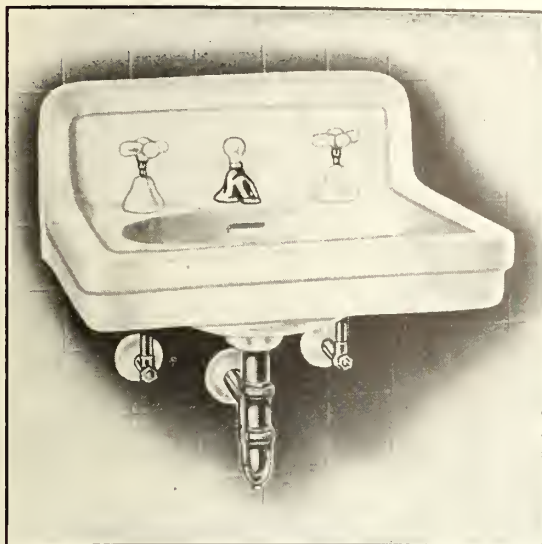
Montreal.

Only one price change is noticed in closet goods this week. The price of the Standard outfit with post hinge seat being reduced fifty cents. Trading locally is reported as fair. Prices in effect locally are as follows:

CLOSET COMBINATIONS—

Low Down Outfits,	each
Closet, standard outfit, oak	24 00
Do., post hinge seat	24 50
Do., oak vitro or Pussyfoot	24 00
Do., post hinge seat	25 50
Do., mahogany vitro or Pussyfoot, post hinge seat and cover	28 00
Do., vitreous china, oak post hinge seat and cover	29 00
Do., vitreous china, mahogany post hinge seat and cover	30 00
Do., white vitro or Pussyfoot, mahogany post hinge seat and cover	30 00
Do., enamelled iron tank, oak post hinge seat and cover	29 50
Do., enamelled iron tank, mahogany post hinge seat and cover	29 50
Add for ¾" valve on supply pipe	1 25
Add for spud	0 60
Add for reverse trap bowl	1 50
Add for syphon jet bowl	7 00
Deduct for supply pipe	0 80
Deduct for floor hinge	0 60
Richelieu bowl	8 00
Washdown bowl with spud	9 50
Reverse trap bowl with spud	9 50
Syphon jet bowl with spud	15 00
CLOSET SEATS—	
Oak post hinge seat and cover	3 85
Oak wood strip seat and cover	3 50
Mahogany finish post hinge seat and cover	4 05
CLOSET TANKS—	
Low down, oak vitro or Pussyfoot with fittings less seat	12 00
White vitro or Pussyfoot with fittings, flush elbow and supply	16 50
Vitreous china tank with fittings, flush elbow and supply	16 00
Enamelled iron with fittings, flush elbow and supply	16 00

Why not Capitalize the Charm of Solid Vitreous Lavatories?



No. 680—X "Mount Carnarvon," 18 in. x 20 in.
No. 682—X "Mount Chancellor," 20 in. x 24 in.

The "Mount" series embody the most advanced ideas of solid vitreous lavatory construction.

The plain straight lines, slightly squared edges, the roomy slab, the large bowl, the open overflow, the quick-draining outlet, the clear, clean, hard, durable, white surface, so easily kept clean, and withal the stone-like texture of the ware itself, are sufficient to ensure a maximum of satisfaction from every practical point of usefulness, as well as a life-time of durability.

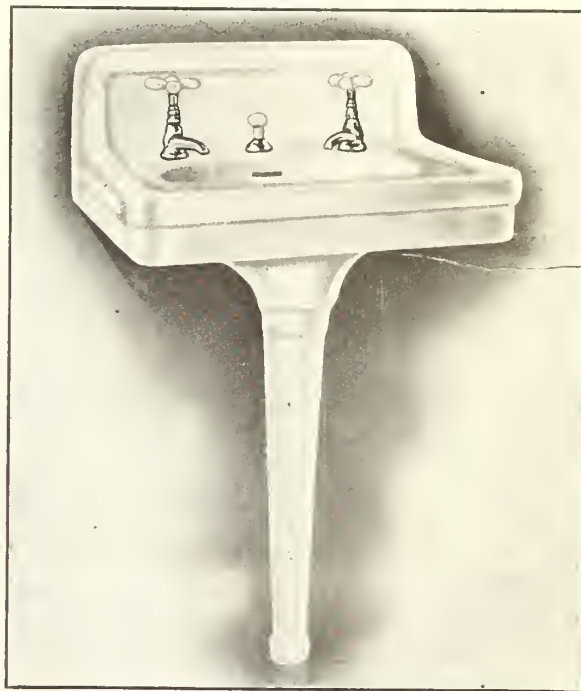
The design shown herewith, is uniform, whether furnished with leg, or for concealed hanger. The two sizes cover most ordinary requirements for either house-hold or public building.

The complete "Mount" series, embraces a very comprehensive line, to cover every requirement. Your jobber will be glad to show you samples or illustrations.

By advocating the installation of solid vitreous fixtures, you render a vital and lasting service to your clients, by giving them the highest grade of sanitary equipment which science has yet evolved.

Thereby you gain their good-will; their approval of your good judgment in the handling of really unapproachable fixtures; their advertising of your methods and your work.

Because the charm of solid vitreous ware is irresistible, the clear white sheen of its time-defying surface, as smooth as glass and as easily kept clean as a china plate, endears itself to the heart of every home-maker, while the true sanitary qualities and durability of the ware commend themselves to anyone who appreciates that years of service ensure the ultimate economy of investing in the best.



No. 680—L "Mount Ball," 18 in. x 20 in.
No. 682—L "Mount Brett," 20 in. x 24 in.

CANADIAN POTTERIES

LIMITED

SAINT JOHNS
QUEBEC

Sales handled exclusively through recognized jobbers of plumbing supplies.

NO CHANGE IN PRICES OF WROUGHT IRON PIPE

Montreal.

Local dealers report a seasonable demand for Lapweld and Butt weld pipe. No change in price is recorded with price list No. 59 still in effect.

WROUGHT PIPE

Price List No. 59. April 24th, 1923. Standard Butt weld Pipe S C per 100 feet.

Size	Steel Blk.	Gen. Galv.	Wrot. Blk.	Iron Galv.
1 1/8 in.	6.00	8.00	.....	.....
1 1/4 in.	4.32	6.30	7.56	9.60
1 1/2 in.	4.32	6.30	7.56	9.60
1 3/4 in.	5.53	6.97	7.82	9.35
2 in.	6.79	8.40	9.55	11.27
2 1/2 in.	9.69	12.07	13.77	16.32
3 in.	13.11	16.33	18.63	22.08
3 1/2 in.	15.68	19.53	22.23	26.40
4 in.	21.09	26.27	29.97	35.52
4 1/2 in.	33.35	41.54	.....	.....
5 in.	43.61	54.32	.....	.....
5 1/2 in.	56.12	69.00	.....	.....
6 in.	66.49	81.75	.....	.....

Standard Lapweld Pipe S C per 100 ft.

Size	Steel Blk.	Gen. Galv.	Wrot. Blk.	Iron Galv.
2 in.	24.42	29.60	33.30	38.85
2 1/2 in.	36.27	44.46	50.31	59.09
3 in.	47.43	58.14	65.79	77.27
3 1/2 in.	57.04	69.92	79.12	92.92
4 in.	67.58	82.84	93.74	110.09
4 1/2 in.	78.74	95.52	1.11	1.33
5 in.	91.76	112.48	1.33	1.55
6 in.	1.19	1.46	1.73	2.02
7 in.	1.55	1.90	2.21	2.62
8 in.	1.63	2.00	2.33	2.73
8 1/2 in.	1.87	2.30	2.68	3.17
9 in.	2.23	2.83	.....	.....
10 in.	2.14	2.52	3.04	3.58
10 1/2 in.	2.76	3.38	3.91	4.61

WEAKER TENDENCY CONTINUES IN SCRAP METAL MARKET

The local scrap metal market shows no change this week, but it is reported that there is a tendency toward lower levels in most of the line and further changes are to be expected shortly. Local quotations are as follows:

SCRAP—

Automobile Tires	0 50
Rubber Shoes	0 02
Yellow brass	0 07
Red brass	0 09
Light brass	0 04 1/2
Scrap zinc	0 05
Lead, heavy	0 05
Lead, tea	0 03
Light copper	0 10
Heavy copper	0 11 3/4
Wrought iron, R. Rd. No. 1 per gr. ton	15 00
Malleable scrap (ton)	18 00
Pipe scrap (ton)	10 50
Heavy melting steel	12 00
No. 2 busheling	6 00
Boiler plate	14 00
No. 1 machinery cast	21 00

FIRM TONE STILL CONTINUES IN PIPE FITTINGS

Montreal.

The local pipe fittings market maintains a firm tone. Dealers report seasonable business. Prices are without change as follows:

PIPE FITTINGS—

Cast iron fittings	10%
Plugs, cast iron	10%
Do., solid	10%
Do., countersunk	10%
Bushings, cast	15%
Do., malleable	15%
Unions	30%
Flanged unions	10%
Flanged fittings	27 1/2%
Dart unions, black, 1 1/2 to 2 in.	331-3%
Do., 1/2 in., 2 1/2 in. and larger	23%
Do., galv. add to black	30%
Nipples, 1/4 to 4", close and short	50%
Do., long	55%
Do., 1/2 to 3", close and short	40%
Do., long	45%
Couplings, 4" and under	25%
Do., 4 1/2" and larger	5%

Malleable Fittings—

Price list effective June 1st, 1922. Discount 63 per cent.

QUIET TONE PREVAILING IN RADIATORS AND BOILERS

Montreal.

The radiation goods market takes on a quiet tone this week, but dealers are looking for a revival of trade shortly. Prices now in effect are the same as have ruled for some time past, as follows:

RADIATORS AND BOILERS—

Radiator list prices are for 1, 2, 3, 4 and 5 column radiators, per sq. ft.

15 in. to 38 in., \$1; 32 in., \$1.10; 30 in., \$1.15; 26 in., \$1.20; 23 in., \$1.26; 22 in., \$1.30; 20 in., \$1.36; 18 in., \$1.40; 16 in., \$1.50; 14 in., \$1.55; 13 in., \$1.60. Discount 44 per cent for hot water, and 45 per cent. for steam.

Wall radiators—5 ft., \$1.15; 6 ft., \$1.10; 7 ft., \$1.05; 9 ft., \$1.05; 12 ft., \$1.05; Discount 41 per cent.

Boilers—Round t water boilers, sizes from 0 to 10, 52 per cent. off list. Square or sectional hot water or steam boilers, 15 in., 3 per cent. with Ontario Government trimmings, list. Square or sectional water boilers, 19 in. to 36 in., 8 per cent. Square or sectional steam boilers, 19 in. to 26 in., 5 per cent. Ontario Government trimmings, list plus 7 per cent. Square or sectional water or steam boilers, 48 in., list plus 10 per cent. With Ontario Government trimmings, list plus 18 per cent.

Round steam boilers, standard trimmings, 16 per cent. Ontario Government trimmings, 13 per cent.

F.o.b. Montreal, Toronto, Guelph.

GOOD BUSINESS REPORTED IN CORRUGATED SHEETS

Montreal.

Trading in corrugated sheets is reported good throughout the district. There are no changes in prices which remain at levels established some time ago and are as follows:

CORRUGATED SHEETS—

	Per 100 sq. ft.
No. 28 gauge	7 00
No. 26 gauge	7 50
No. 24 gauge	10 00
No. 22 gauge	12 50
No. 20 gauge	14 00
No. 18 gauge	19 00

Less 10 per cent.
Lighter than 24 gauge and wider than 27 ins.
75 cents per square extra.

SLACKNESS NOTICEABLE IN SHEETS AND PLATES

Montreal.

Local distributors report a slackness in sheet metal market. Prices on sheets and plates have shown no tendencies for some time to deviate from the following prices:

BLACK SHEETS—

10 gauge, base	4 75	5 00
12 gauge	4 85	5 00
14 gauge	4 85	5 10
16 gauge	5 05	5 15
18—20 gauge	5 20	5 25
22—24 gauge	5 20	5 35
26 gauge	5 25	5 40
28 gauge	5 35	5 60

GALVANIZED SHEETS—

18-20 gauge	Queen's Head	Fleur de Lis
22 gauge	6 90 7 40	6 65 7 15
24 gauge	7 15 7 65	6 90 7 40
26 gauge	7 25 7 75	7 00 7 50
28 gauge	7 50 8 00	7 25 7 75
	7 75 8 25	7 50 8 00

Other Brands—

10 1/2 oz.	7 50	7 75
23 U. S. gauge	7 20	7 50
24 U. S. gauge	6 55	7 10
24-22 gauge	6 60	6 85
20-18 gauge	6 40	6 50
16 gauge	6 25	6 35

Above prices are for 1/2 ton lots in English iron and 1000 lb. lots in American iron with an extra charge of 25c. for less quantities. Extra for sheets 3 ft. wide, 28 gauge and 10 1/2 oz., 25c. per 100 lbs.

Further extra for sheets 4 ft. wide according to gauge.

TIN PLATE—

20 x 28 x 100 lbs. basis	15 50
20 x 28 IC, 112s	16 00
20 x 28 IX, 112s	18 00
20 x 28 IXX, 56s	11 00
20 x 28 IXXX, 56s	12 00

TERNE PLATE—

20 x 28 IC, 112s, 200 lb.	14 50
20 x 28 IC, 112s, 214 lb.	15 00

CANADA PLATE—

Half bright 52s	5 50
Half bright 60s	5 60
Blued 52s	5 90
Blued 60s	6 00
Welsh, polished, 60s	7 35
Welsh, polished, 52s	7 10
Galvanized, 52s	8 00
Galvanized 60s	8 50

GOOD WEATHER MEANS BUSINESS IN METAL LATH MARKET

Montreal.

Seasonable business is reported in metal lath, warm weather having speeded up building activities, making quite a noticeable difference in trading. Prices are unchanged as follows:

METAL LATH—

	per sq. yd.
Painted—	
26 gauge	23c.
24 gauge	28c.
32 gauge	32c.
Galvanized, 5c. per sq. yd. extra.	

NO CHANGE IN PRICES OF COMPRESSION GOODS

Montreal.

No change is reported in the price of compression goods. Sales are reported as very good with indications of increased business later. Discounts shown are in effect locally:

VALVES AND BIBBS—

Compression work, standard	45%
Fuller work, standard	30%
Quick opening, compression bibbs	43%
Bath cocks, quick opening	38%
Bath cocks, compression	40%
Basin cocks, quick opening	46%
Flatway stop and waste cocks, standard	54%
Roundway stop and waste cocks, std.	42%
Brass steam cocks, standard, 1/4 in.	25%
Radiator valves, standard	55/25%
Do., removable discs	55/25%
Globe, angle and cock valves, std.	25%
Gate or straightway	25%
Emco globe valves	33%
Emco check valves	33%
Jenkins globe, angle, check and swing check	plus 15%
Jenkins gate or straightway	plus 11%
Jenkins iron body, globe and angle	plus 10%
Jenkins iron body, gate	12%
N. P. "O" and "S" traps	34%

TRADING IN COTTON WASTES CONTINUES GOOD LOCALLY

Montreal.

Good business is reported in cotton wastes this week. There have been no changes in prices, with local quotations as follows:

COTTON WASTES—

	Per lb.
Cream polishing	0 24
White, XXX extra	0 20
White, XX grand	0 18 1/2
White, XLCR	0 17
X Empire	0 15 1/2
X Press	0 14

Colored—

Fancy	0 15 1/2
Lion	0 14
Standard	0 12 1/2
Popular	0 10 1/2
Keen	0 08 1/2

Wool Packing—

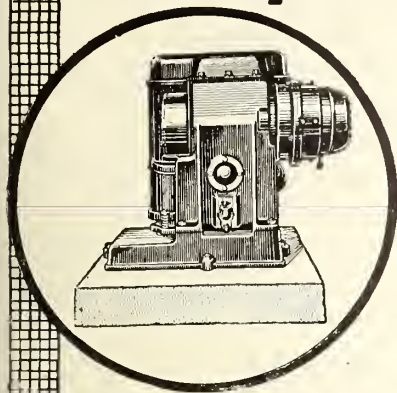
Arrow	0 25
Axle	0 21
Anvil	0 17

Domestic Wipers—

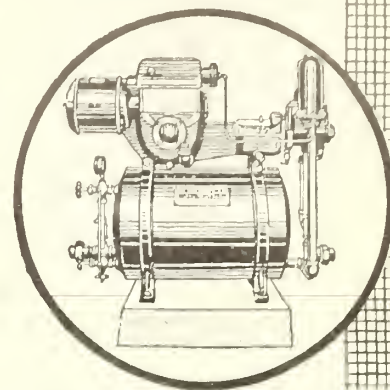
White cotton	0 19
Colored cotton	0 15

F.o.b. Toronto and Montreal.

The Biggest Water-System Proposition Ever Offered



*26 Styles and Sizes
Reasonable Prices
Highest Quality*



THE Delco-Light Company now comes to the plumber and pump dealer with the best electric water-system proposition ever offered.

Delco-Light Electric Pumps are the natural development of our world-wide business in Delco-Light electric lighting and power plants.

They were designed with our experience of what is needed in the individual water system. There is a style and size to meet any condition which may arise—the pitless deep well pump—

the shallow well pump—large and small capacity—A.C. and D.C. service. The Delco-Light Pump Dealer need never lose a sale, because he has the exact style and size for every need.

And the prices are right.

Remember, these pumps are Delco-Light built. They represent years of electrical research and manufacturing experience.

The Delco-Light Distributor has a mighty interesting proposition for the pump dealer or plumbing contractor. Write to your nearest distributor about it.

Delco-Light Co. of Canada, Limited
Toronto, Ontario

Distributors:
ELECTRICAL SYSTEMS LIMITED
173 King Street East
TORONTO, ONT.

DELCO-LIGHT

Water Systems

For Country and City Homes

COPPER AND BRASS PRODUCTS ARE FIRM

Montreal.

No change in price is noticed in copper and brass products. The market is steady and locally prices are quoted as follows:

BRASS—	
Sheets, base	0 27
Rods, ½ to 2 inches, round.....	0 24
Tubing, seamless, base	0 32
COPPER—	
Rods, ½ to 2 inch.....	0 30
Soft sheets, plain, 16 oz. and heavier, lb.	0 33
Plain tinned, 16 oz. and heavier, lb.	0 40
Polished, and tinned, 16 oz. and heavier, lb.	0 44
Tubing, lb.	0 34
Above prices are for full sheets or bars. Cuts 5c. per lb. higher.	

IRON AND STEEL PRODUCTS ARE WITHOUT CHANGE

Montreal.

Bar products still remain in a firm market with prices showing no change. Prices quoted locally are as follows:

IRON AND STEEL—	
Common bar iron, 100 lbs.....	3 95
Refined iron	5 45
Irish finish machinery steel.....	4 00
Mild steel	3 95
Single reeled machinery steel.....	5 50
Band steel	3 95
Sleighshoe steel	3 95
Spring steel	5 00
Tire steel	4 15
Harrow tooth steel	3 80
Toe caulk steel.....	4 85
Mining tool steel, per lb.	0 19
Black Diamond tool and cast steel, per lb.	0 19

NOTE.—Refined iron is approximately \$1.50 per cwt. over base, but fluctuates owing to unsettled market.

Band steel in scroll bundles, 50c per 100 lbs. extra.
Iron and steel 3-16 in. and thinner, 50c per 100 lbs. extra.

PRICE ON SOLDER CONTINUES TO DECLINE

Montreal.

A steady decline in the price of solder has been noticed for the past month and distributors are now quoting as follows: Strictly 28 cents, commercial 26 cents, wiping 24½ cents, wire solder 40 cents per pound.

SLIGHT ADVANCE NOTICED IN ASBESTOS WICK PACKING

Montreal.

A slight advance is reported by distributors in asbestos wick packing and is now being quoted at 45 cents per pound.

ASBESTOS PRODUCTS—

Off list prices	
2 ply pipe covering	57½%
3 ply pipe covering	55%
4 ply pipe covering	50%
85 per cent. magnesia	35%
Per bag	
Boiler covering	\$1 50
Per 100 lbs.	
Asbestos sheathing	8 25 9 00

IMPROVED TONE NOTED IN INGOT METAL MARKET

Montreal.

The metal markets show an improved tone this week, especially in zinc, which is quite firm, but indications point that the general decline is fairly well completed, although possibly lead may go a little lower in the U. S. A. A great deal depends, however, on the outcome of the European situation.

TIN.—This metal is firmer both in London and New York, showing a recovery of £5 to £6 per ton. It is a little early to prophesy as to whether this will be maintained or not, but sentiment is decidedly better and it is possible that we may see higher prices. The local market is quiet at 45 cents per pound.

COPPER.—The London market is decidedly firm in tone, and while there is no current basis for this beyond sentiment, it has its influence on prices. A settlement of the Ruhr trouble would undoubtedly be followed by a sharp advance.

In the U. S. A. producers are firmer in their ideas, especially for forward shipments. The local market is steady at 20 cents for electro and 19½ cents for casting.

LEAD.—The London market has advanced this week, while American prices

have declined. The latter was inevitable, but it is probable that the decline there is almost complete. It is not likely that prices will advance far as supplies are still ample. The local market is firm at 8 cents per pound.

SPELTER.—This metal has shown considerable strength this week. East St. Louis having advanced over ½ cent per pound with every indication of still higher prices. London is also firm in tone and it is quite apparent that the decline has been overdone. Local market is strong at 9 cents per pound.

ANTIMONY.—There are no new features in this metal which remains firm in tone, although demand is rather quiet. This metal is still very cheap and a renewal of active buying would undoubtedly force prices higher. The local market is steady at 8½ cents for English and 8 cents for Chinese.

Toronto Markets

TORONTO, July 12.—This week's trade again shows signs of a steady improvement over that of previous weeks, good sales having been recorded in nearly every line. Some lines are selling exceptionally well, for example, eavestrough is being disposed of as fast as the manufacturers can turn it out; this applies to all common lines such as O. G. trough.

Scrap metals, which have had a very poor market for the last three months, stiffened a little during the last two days.

Copper ingots give out a very firm note, and the price of this metal is expected to move a little higher. All other ingots show no changes in price tendencies and remain steady at last week's levels.

Collections are improved locally, dealers are expecting further improvements in this direction as soon as the crops are harvested.

DECLINE IN TWO TYPES OF BOILER STANDS

Toronto.

Adjustable boiler stands 12 to 14 inch which were selling at sixty cents each are now quoted at forty-five cents each, and Stahl boiler stands which sold for seventy cents each are now quoted at sixty cents each.

BOILER STANDS—

Each—5 gal. \$1.50; 12 gal. \$1.50; 18 gal. \$1.50; 25 gal. \$1.50; 30 gal. \$1.50; 35 gal. \$1.75; 40 gal. \$1.90; 52 gal. \$2.10; 66 gal. \$2.25; 82 gal. \$2.50; 100 gal. \$3.80; 120 gal. \$4.00; 144 gal. \$4.00; 168 gal. \$4.00; 192 gal. \$4.00; Adjustable Stands 12 to 14 in., 45c. Stahl boiler stand, 60c.

COTTON WASTES ARE SELLING FAIRLY WELL

Toronto.

Fairly good sales have been recorded locally in cotton wastes and oakum.

COTTON WASTES—

XC.....	0 15½
XXX extra	0 20
X, grand	0 18½
XLCR.....	0 17
X, Empire	0 15½
X, press.....	0 14
Colored, No. 1	0 14½
No. 17	0 14½
No. 1A.....	0 13½
No. 1B.....	0 11½
Fancy	0 15½
Lion	0 14
Standard	0 12½
Popular	0 10½
Keen	0 08½
X	0 17
Above lines subject to trade discount for	
Cream, polishing	0 24
White, XXX.....	0 21
XX	0 18

GALVANIZED SHEETS SELLING WELL

Toronto.

Black sheets adjusted in price to a level ten cents per hundred pounds higher than before.

GALVANIZED SHEETS—

Premier and Apollo	
10½ oz.	6 90 7 40
U. S. 28 base	6 50 6 90
U. S. 26 base	6 30 6 60
22 and 24	6 05 6 45
18 and 20	6 05 6 30
16	5 90 6 15
12 and 14	5 75 6 00

Queen's Head	
28 gauge, base	7 50 8 00
26	7 35 7 60
24	7 05 7 30
22	6 90 7 15
Fleur de Lis	
23 gauge base	7 25 7 50
26	6 85 7 10
24	6 55 6 80
22	6 40 6 65

An extra 20c. per 100 lbs. is charged for Keystone and Premier brands copper-bearing sheets.

An extra is now charged on galvanized sheets. 10½ oz. and 28 ga., when shipped out in sheets 3 feet wide. The extra charged over prices shown in 20c. per 100 pounds.

TANK STEEL PLATES—

¼-in. and heavier, base	3 60
3-16 in.	3 95

BLUE ANNEALED SHEETS—

10 gauge, base	4 50 4 60
12 gauge	4 55 4 65
14 gauge	4 60 4 70
16 gauge	4 65 4 75

BLACK SHEETS—

18-20 gauge	5 35 5 45
22-24 gauge	5 40 5 50
26 gauge	5 45 5 55
28 gauge	5 60 5 70

A charge of 25c per 100 lbs. is made for less than case lots. An extra 10c. per 100 lbs. is also charged on sheets 26 in. wide.

Viking Radiators

A satisfactory heating system is only obtainable through perfect radiation. On your installation the boiler may be the finest that can be procured, and your mains and leads properly installed but the work will not be productive of best results unless the radiators preform their function in a proper manner.

Viking radiators will complete the best possible job, one that you can be sure of satisfying your customers.

Write us about your requirements.



WARDEN KING, Limited, Montreal

Branch Office :

136 Simcoe St., Toronto



GIVE LABOR A REST!

All the unnecessary work of fixing this and fixing that, half a dozen times a year. What's the use?

Why not fix it once so that it will stay **FIXED** always?

Rawlplugs will do it.

Just use Rawlplugs with the screws and your fixtures will never loosen, in any material from plaster to steel.

Rawlplugs give labor a rest!

Rawlplugs give you a profit!

Rawlplugs give your client satisfaction!

Why not try Rawlplugs on your next job?

We will be pleased to send you samples and price list upon receipt of your letter.

INVENTIONS LIMITED **THE RAWLPLUG CO. OF CANADA**
SOUTHAM BUILDING, BLEURY ST., MONTREAL
FIX IT WITH

SALES AGENTS:

Dominion Engineering Agency, Ltd., 24 Adelaide St. E., Toronto, Ont.

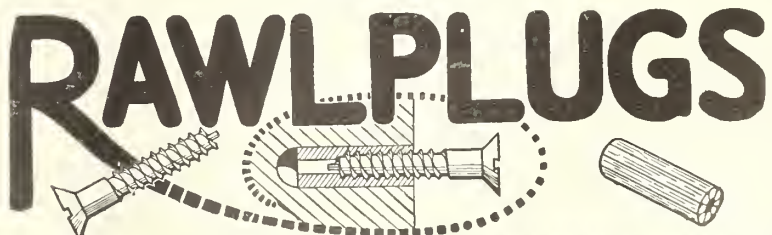
Sterling Specialties, 213 Somerset Building, Winnipeg, Man.

H. G. Evans, 58 Water St., St. John, N.B.

Blackadar & Stevens, 139 Roy Building, Halifax, N.S.

Frank Raw & Co., 325 Howe St., Vancouver, B.C.

AGENTS WANTED IN OTTAWA.



COPPER PRICES GIVE OUT FIRMER NOTE

Toronto.

No changes have been made in the price of copper though the market is more firm the last few days. Other ingots are unchanged.

INGOT METALS—

Copper \$18.00; Tin \$45.00 to \$46.00; Lead \$8.00 to \$8.25; Spelter \$9.00; Antimony, \$8.25 to \$8.75; Aluminum, \$23.00 to \$25.00.

COKE AND CHARCOAL TIN PLATES HAVE AVERAGE SALES

Toronto.

No price changes are given out this week on tin plates. Average quantities have been sold by dealers.

PLATES. (COKE TIN)—

20x28 100 lbs. basis, box.....	15 50
20x28 1C, 112s, box.....	16 00
20x28 1X, 112s, box.....	18 50
20x28 1XX, 56s, box.....	10 50
20x28, 1XXX, 56s, box.....	11 50
20x28, 1C Terne, 112s, box.....	16 00

PLATES (CHARCOAL TIN)—

20x28, 1X, 56s, box.....	8 50	9 00
20x28, 1XX, 56s, box.....	9 90	10 50

TIN PLATES (For Boilers)—

	Small Lots	Case
	Per C. lbs.	Lots
14x60 1XX, 56 sheets per case..	12 50	12 00
14x60 1XXX,	12 50	12 00

TINNED SHEETS FOR MILK CANS—

16½ x 41¾, 18 ga.	9 65	9 15
21 x 41¾, 18 ga.	9 65	9 15
30 x 72, 20 ga.	14 50	14 00
30 x 45¼, 2 ga.	10 15	9 65
30 x 50, 22 ga.	10 25	9 75
30 x 54, 22 ga.	10 30	9 80
30 x 78, 22 ga.	10 35	9 85
30 x 72, 22 ga.	15 00	14 50
36 x 84, 22 ga.	15 00	14 50
42 x 84, 22 ga.	15 75	15 25
48 x 96, 22 ga.	16 50	16 00
30 x 50, 24 ga.	10 25	9 75
30 x 54, 24 ga.	10 30	9 80
30 x 58, 24 ga.	10 35	9 85
30 x 72, 24 ga.	15 0	14 50
36 x 84, 24 ga.	15 00	14 50
42 x 84, 24 ga.	15 75	15 25
30 x 72, 26 ga.	15 50	15 00

CORRUGATED SHEETS SELLING WELL

Toronto.

No price changes have occurred on corrugated sheets. Good sales have been made in this line this week.

CORRUGATED SHEETS—	Per 100 sq. ft.
No. 28 gauge	7 00
No. 26 gauge	7 50
No. 24 gauge	10 00
No. 22 gauge	12 50
No. 20 gauge	14 00
No. 18 gauge	19 00
Less 10 per cent.	

Lighter than 24 gauge and wider than 27 ins., 75 cents per square extra.

NO CHANGE IN SOIL PIPE PRICES

Toronto.

Fair sales are recorded on soil pipe and soil pipe fittings. The prices are still the same as published heretofore.

SOIL PIPE AND FITTINGS

2 inch	Less 20%
3 inch	Less 20%
4 inch	Less 25%
5 and 6 inch	Less 20%
8 inch	net

FITTINGS—

8 inch fittings.....	net.
2 to 6 inch	Less 37½%

GOOD QUANTITIES OF LEAD AND ZINC GOODS SELLING

Toronto.

Local dealers report that good quantities of solder, lead and zinc goods are selling now. The prices of last week are still being maintained.

LEAD AND ZINC GOODS—

Lead pipe, per 100 lbs., up to 2".....	14 50
Do., 2" to 8"	15 50
Do., 8" and over.....	16 50
Lead waste, per 100 lbs.....	15 50

Note—Lead pipe is subject to a discount of 10 per cent.

Lead traps and bends	15 ½
Lead wool, lb.	9 14 ½
Lead sheets, 2½ lbs., sq. ft. per lb.....	0 12 ½
Lead sheets, 3 to 3½ lbs.	0 11 ½
Do., 4 to 8 lbs., sq. ft. lb.....	0 10 ½
Cut sheets, ¾ c. per lb. extra.	
Cut sheets, to size, 1 c. per lb. extra.	
Solder, guaranteed, lb.....	0 29 0 30
Do., strictly, lb.	0 27 0 28
Do., commercial	0 25 0 27
Do., wiping	0 27 0 28
Do., wire	0 35 0 38
Zinc sheets, casks, lb.....	0 11 ¾ 0 12 ½
Do., do., less, lb.....	0 12 ¼ 0 13 ½

SALES IN EAVESTROUGH ARE EXCEPTIONALLY GOOD

Toronto.

Standard lines of eavestrough are selling very well. Manufacturers report that they are selling O. G. trough as fast as it is manufactured. The prices are the same as they have been for some time.

TROUGH (Eave)—

O. G. Square Bead	Per 100 ft.	Per 100 ft.
8 inch	\$15 90	15 inch.....\$34 50
10 inch	17 70	18 inch.....44 00
12 inch	21 20	
O. G. Round and Half Round—		
8 inch	16 90	15 inch.....35 50
10 inch	18 70	18 inch.....45 00
12 inch	22 20	

Less 65 and 5 per cent.

PIPE (Conductor)—

Plain, round or corrugated	Per 100 ft. in 10 ft. lengths
2 in., in 10 ft. lengths, list.....	18 40
3 in., in 10 ft. lengths, list.....	22 30
4 in., in 10 ft. lengths, list.....	29 60
5 in., in 10 ft. lengths, list.....	48 00
6 in., in 10 ft. lengths, list.....	58 80

Less 65 and 5 per cent.

CONDUCTOR ELBOWS—

Plain, round or round corrugated:	
2 inch, list	\$ 5 25
3 inch, list	6 00
4 inch, list	10 50
6 inch, list	29 00

Outlets, cut offs, tubes and conductor hooks

List less 50 and 10 per cent.

RANGE BOILERS SELLING IN GOOD QUANTITIES

Toronto.

The sales created by extensive building which has kept up throughout the season are still strong on range boilers. The medium sizes, especially, are moving well.

RANGE BOILERS—	St'nd'rd	Ex. He'vy
5 gallon	8 77	
10 to 15 gallon.	9 10	
18 gallon	9 75	
25 gallon	10 70	
30 gallon	11 35	13 13
35 gallon	13 30	15 38
40 gallon	14 80	17 06
52 gallon	24 70	28 50
66 gallon	39 50	45 56
82 gallon	43 10	55 50
100 gallon	66 95	77 25
120 gallon	76 05	87 75
144 gallon		122 50
168 gallon		140 25
192 gallon		157 50

EXTRAS—

For horizontal tapping	1 15
1" Special for gas heater	1 00
Each extra 3" tapping	3 00
Each extra 2" tapping	1 75

BRASS GOODS HAVE GOOD SALES

Toronto.

Jobbers report that good sales have been made this week in brass goods and lavatory fittings. The prices in last issue are still in force.

BRASS GOODS—

No. 3825 Compression, complete with tails	3 75
No. 4 Std. Comp. Double Bath, No. 3829 F	4 46
Ditto with China Hdle, No. 3830F.....	4 92
Quick Opening—	
Brass handle on top, No. 3850 F.....	4 90
China handle on top, No. 3850 F.....	5 52
Quatern Top China Hdle, A3200.....	5 52
Brass handle on side, No. 3851F.....	4 95

(less Jewell's cup)	
China handle on side No. 3852 F.....	5 45
(less Jewell's cup)	
Quatern Side China Hdle, A3500.....	5 45
No. 4½ Fuller, brass handle, No. 38 2.....	6 45
A2395 Mueller, type Shower Faucet.....	9 25
¾ in. N. P. Brass Supply Pipes..... pair	2 20
½ in. N. P. Brass Supply Pipes..... pair	2 30
½ in. Galvanized Iron Nickle Plated Supply Pipes	1 75
1¼ or 1½ Overflow and Waste, 19 gauge, N. P. on rough	3 20
1½ T.B.L. Overflow and Waste, 19 gauge, N. P. on the rough	4 15

LAVATORY FITTINGS—

Riley Basin Cocks China Index, per pair	7 00
Riley Jr. Basin Cocks, China Index, per pair	6 00
Adanac Basin Cocks, Brass Handle, No. 3632, per pair	4 68
Adanac Basin Cocks, China Handle, No. 3635, per pair	5 20
Quatern Top China Hdle, A2000	5 20
Quick Opening Basin Cocks, Brass Hdle, No. 3630, per pair	3 70
Quick Opening Basin Cocks, China Handle, No. 3633, per pair	4 28
Quatern Top China Hdle, A1900.....	4 28
Fuller No. 0 Basin Cocks, Brass Handle, No. 3650, per pair	4 10
Fuller No. 0 Basin Cocks, China Handle, No. 3651, per pair	5 04
Midget No. 0 Basin Cocks, No. Index, No. 3623 per pair.....	3 14
Midget No. 0 Basin Cocks, With Index, No. 3623, per pair	3 45
¾ in. N.P. Brass supplies to wall or floor	2 20
¾ in. Galvd. supplies N. P.	2 05
1¼ in. N.P.S. Traps to floor No Vent 20G No. 4458	3 46
1¼ in. N.P.S. Traps to floor with Vent 20G No. 4462.....	4 53
1¼ in. N.P.P. Traps, No Vent 20G No. 4450.....	2 74
1¼ in. N.P.P. Traps No Vent Toronto By-law No. 4450	2 97
1¼ in. N.P.S. Traps with Vent Toronto By-law No. 4462	4 98
1¼ in. N.P.S. Traps with Vent Toronto By-law No. 4462	6 67
2 in. N.P.S. Traps with Vent Toronto By-law No. 4462	14 00
Patent Overflow basin plugs	0 71
Pop up waste	5 00
Unique waste China Knob	5 50
Unique waste China Index	5 00
1¼ in. Deep Seal Trap No Vent.....	3 75
1¼ in. Deep Seal Trap No Vent	6 00
1¼ in. Elliptic Trap	6 50
1½ in. Elliptic Trap	9 00
Whirlpool N.P. Traps list prices less.....	15%
½ in. Lever Handle, Stop and Waste solid key, No. 3969	0 83
½ in. Lever Handle, Stop and Waste, pin cheek, lose key, No. 4032	1 04
½ in. Lever Handle, Stop and Waste, pat. cap, loose key, No. 4044.....	1 21
½ in. Boiler Drain Cocks 3571.....	0 80

QUIET MARKET ON BOILER TUBES

Toronto.

While some boiler tubes are being sold, the market in this line is, on the whole, a trifle quiet. Prices remain unchanged.

BOILER TUBES—	Seamless Lapweld
1 inch	20 00
1¼ inch	22 00
1½ inch	24 30
1¾ inch	24 50
2 inch	22 00 19 50
2¼ inch	24 50
2½ inch	29 00 23 50
3 inch	34 00 30 00
3¼ inch	37 00
3½ inch	39 50 35 00
4 inch	50 00 45 00

Prices, per 100 ft., f.o.b. Montreal.

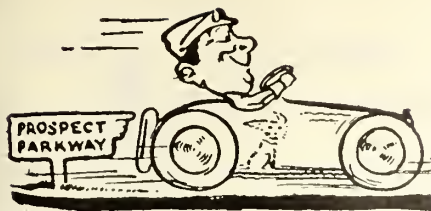
ASBESTOS MARKET STILL QUIET

Toronto.

The asbestos market is still very dull. No price changes have been made this week.

ASBESTOS' PRODUCTS—

Pipe Covering—	
Air cell, 4 ply	50 per cent. off list
Air cell, 3 ply	55 per cent. off list
Air cell, 2 ply	57½ per cent. off list
Boiler Covering	\$1.50 — \$2.00 per bag
Asbestos paper or felt.....	\$8.25 \$9.30
Magnesia pipe covering	less 40 per cent.
Magnesia pipe covering, small lots, less	35 per cent.



Are You Chasing Prospects?

Most good merchant plumbers are hotfoot after Gas Water Heater business just now—

But it's hardly worth while selling some heaters; your profit is all eaten up by return trips and adjustments.

The Marvel—built in one piece—is simple and inexpensive to install and once installed it stays put. You keep all the profit. With its low cost, high efficiency, economy of gas consumption and neat appearance, the Marvel is easily sold—and, moreover, it stays sold.

Sold Only Through Plumbers.

Bastian Morley Limited

125 Hanson St., Toronto, Ont.



RADIATOR HANGER

YOU'LL USE 'EM YET!



Style R.

Advantage No. 6

Vertical adjustments made with 1/2-inch pipe. No special tools required.

For ANY style radiator; ANY type wall construction.

Write for the whole list of their advantages.

Healy-Ruff Co.

Dept. 23

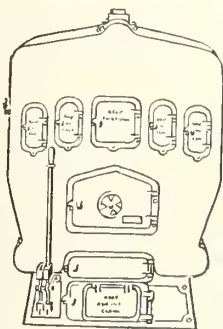
Minneapolis, Minn.

"Made in Canada"

Burnham Boilers

BUT

Do They Do
What They Say
They Will Do?



The Square Burnham is made in 38 sizes, 19 each for water and steam.

if a Burnham rating says it will do a certain thing, then it will certainly do that thing.

Lord & Burnham Co. Limited

(Boiler Department)

Harbor Commission
Building,
Toronto, Ont.



Factory:
St. Catharines, Ont.

A Suggestion

"Medium Weight soil pipe has a round bead pattern at the hub to distinguish it readily from the Extra Heavy weight pipe which has a flat bead pattern.

This is only a matter of design, one being as strong as the other.

We respectfully suggest the advisability of continuing the excellent practice of invariably specifying medium weight pipe in the round bead pattern."

**TORONTO HARDWARE MFG.,
CO., LIMITED**

Winnipeg, Man.

WINNIPEG, July 12.—Merchants from Western centres report that business is steadily improving but there is room for increased business. Building has been fairly active in the larger cities. Crop reports are very favorable and indications point to a bumper crop which will mean that business will be stimulated once the crops are harvested. Price changes are few, although primary markets are ruling steady. Range boilers and boiler tubes maintain a steady level. A firm tone prevails in the pipe fitting and soil pipe markets. Sheet lead and galvanized black and Canada sheets are selling freely. There is a slight decline on wrought washers, while compression goods show no change.

WROUGHT PIPE CONTINUES FIRM

Winnipeg.

There has been a seasonable demand for wrought pipe, and the following prices are ruling steady:

PIPE WROUGHT—	Per 100 Feet	
	Blk.	Galv.
1/8 in.	7 20	9 75
1/4 in.	5 10	7 50
3/8 in.	5 25	7 65
1/2 in.	6 80	8 50
3/4 in.	8 30	10 25
1 in.	11 90	14 75
1 1/4 in.	16 10	19 95
1 1/2 in.	19 25	23 85
2 in.	25 90	32 10
2 1/2 in.	40 90	50 75
3 in.	53 50	66 40
3 1/2 in.	68 80	84 30
4 in.	81 50	99 85
4 1/2 in.	96 50	117 80
5 in.	112 50	137 35
6 in.	146 00	178 00

EAVES AND CONDUCTORS STAY AT STEADY PRICES

Winnipeg.

There is no change in the prices of eaves and conductor pipes on the local market. There is the usual summer demand and an improvement is reported from all sources. Current quotations on the local market are as follows:

EAVESTROUGH—	
Size 8 in. per 100 feet.....	6 08
Size 10 in.	6 75
Size 12 in.	8 10
Size 15 in.	11 25

CONDUCTOR PIPE—

Size 2 in. per 100 feet.....	7 43
Size 3 in. per 100 feet.....	8 55
Size 4 in. per 100 feet.....	10 80
Size 5 in.	15 30

GOOD DEMAND FOR SHEETS AND PLATES

Winnipeg.

Wholesalers report that there is a steady demand for galvanized black and Canada sheets. This is due largely to the increased activity in building circles. The following quotations remain unchanged.

CANADA PLATES—		Per box
Size 18x21, Blue.....	7 50	
Size 18x24 Blue.....	7 50	
Size 20x28 Blue.....	7 50	

SHEET IRON—Galvanized—

Size 16G	8 25
Size 18G	8 40
Size 20G	8 40
Size 22G	8 55
Size 24G	8 55
Size 26G	8 70
Size 28G x 30.....	9 00
Size 28G x 36.....	9 30
Size 10 1/2 oz. x 30.....	9 40
Size 10 1/2 oz. x 36.....	9 70

SHEET STEEL—BLACK—

Size 10G	6 35
Size 12 G	6 35
Size 14 G	6 50
Size 16 G	6 55
Size 18G and 20G.....	7 15
Size 22G and 24 G.....	7 20
Size 26 G	7 25

SHEET LEAD SELLING FREELY

Winnipeg.

There has been a steady demand for sheet lead, and 3 and 3 1/2 pounds are quoted at 15c. and 4 lbs. and over at 14c.

SOIL PIPE PRICES UNCHANGED

Winnipeg.

There is a fairly steady demand for soil pipe and prices are fully maintained on the local market.

FIRM TONE MAINTAINED IN PIPE FITTING MARKET

Winnipeg.

The local pipe fitting market maintains a firm tone and with building activity, an improvement is expected.

QUOTATIONS ON BOILER TUBES STEADY

Winnipeg.

There is no change in prices on boiler tubes. There has been a good demand for this line and the following sizes are quoted as listed below:

BOILER TUBES—

Size 1 3/4 inch diameter per foot.....	0 28
Size 2 inch	0 25
Size 2 1/4 inch	0 29
Size 2 1/2 inch	0 30
Size 3 inch	0 41
Size 3 1/2 inch	0 47
Size 4 inch	0 62

NO CHANGES IN QUOTATIONS ON RANGE BOILERS

Winnipeg.

There is a steady seasonable demand for range boilers which is keeping pace with local building activity. Prices show no change.

WROUGHT WASHERS AT LOWER LEVELS

Winnipeg.

A decline is quoted on wrought washers and the following sizes are quoted as listed below:

WROUGHT WASHERS—	Case lots less	
	Per 100 lbs.	
Size 3-16 inch.....	14 10	14 60
Size 1/4 inch	12 48	12 98
Size 5-16 inch	11 76	12 26
Size 3/8 inch	10 95	11 45
Size 7-16 inch	10 32	10 82
Size 1/2 inch	9 96	10 46
Size 9-16 inch	9 87	10 37
Size 5/8 inch	9 78	10 28
Size 3/4 inch	9 69	10 19
Size 7/8 inch	9 60	10 10
Size 1 inch	9 60	10 10
Size 1 1/4 inch	9 78	10 28
Size 1 1/2 inch	9 78	10 28
Size 1 7-16 inch.....	9 78	10 28
Size 1 1/2 inch	9 78	10 28

NO CHANGE IN COMPRESSION GOODS

Winnipeg.

There are practically no changes in quotations on compression goods.

Calgary, Alta.

BOILERS AND RADIATION

GOODS DECLINE

Among the farm trade certain June activities have been delayed or postponed. This is noticeable in fencing and pump sales, which no doubt will catch up with any off weeks the farmer may have before harvest and threshing time. Price changes seem to be few, and values seem to have settled on a stable basis. Travellers feel that after the last element of chance has been removed regarding the crop, that a large list of accumulated needs will develop, and are urging their buying departments to anticipate this.

An adjustment downward on boilers and radiators has been made. The following schedule of discounts is effective at Calgary, Edmonton and Lethbridge.

Round hot water boilers, all size, 15% off.
Square hot water boilers, 19 to 36 in., 10% off.
Square hot water boilers, 48 in. Plus 8%.
Round steam boilers, all sizes, gov. trimmings, 14% off.

Square steam boilers, 19 to 35 in., gov. trimmings, plus 6%.

Square steam boilers, 48 in. Gov. trimmings, Plus 15%.

Radiation, 2, 3, 4, 5 Column: Hot Water—38 in. \$61.98; 32 in. \$68.17; 30 in. \$71.27; 26 in. \$74.37; 23 in. \$78.09; 22 in. \$80.57; 20 in. \$84.29; 18 in. \$86.77; 16 in. \$92.96; 14 in. \$96.06; 13 in. \$99.16.

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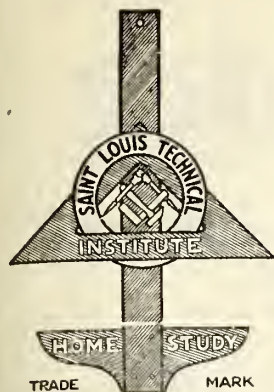
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Vitro or Pussyfoot White Tank with Mah. P. H. Seat	31 90
Vitro or Pussyfoot White Tank with Painted White P. H. Seat	33 60
Vitro or Pussyfoot White Tank with Celluloid White P. H. Seat	38 40
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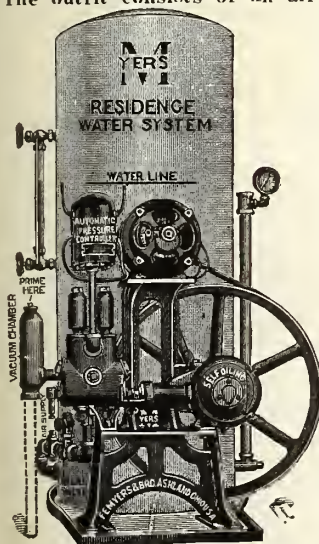
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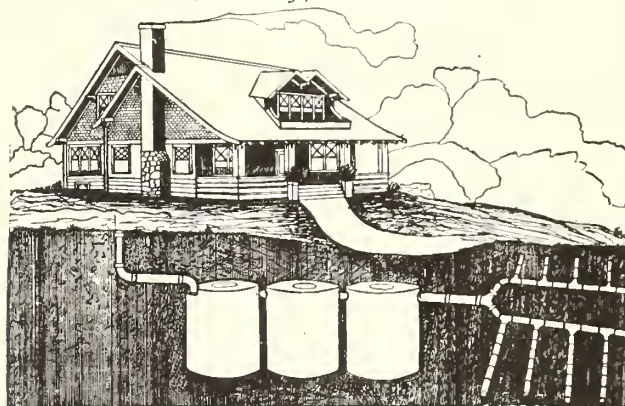
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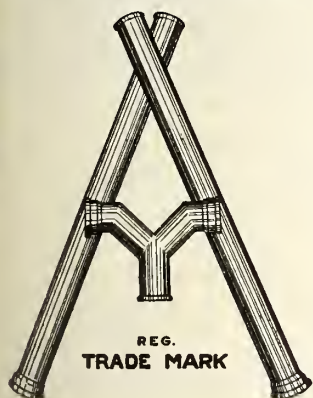
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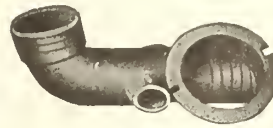
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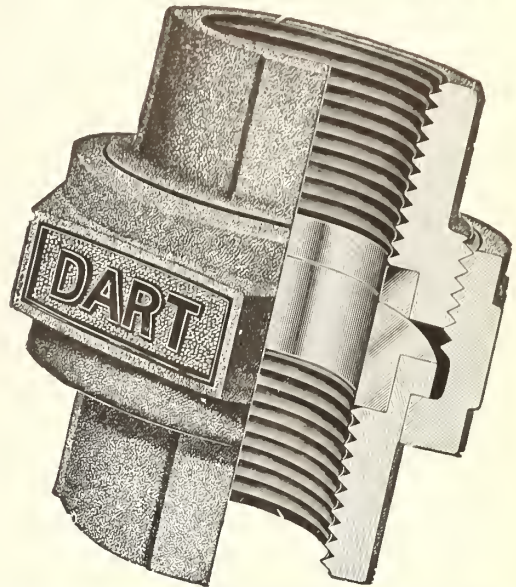
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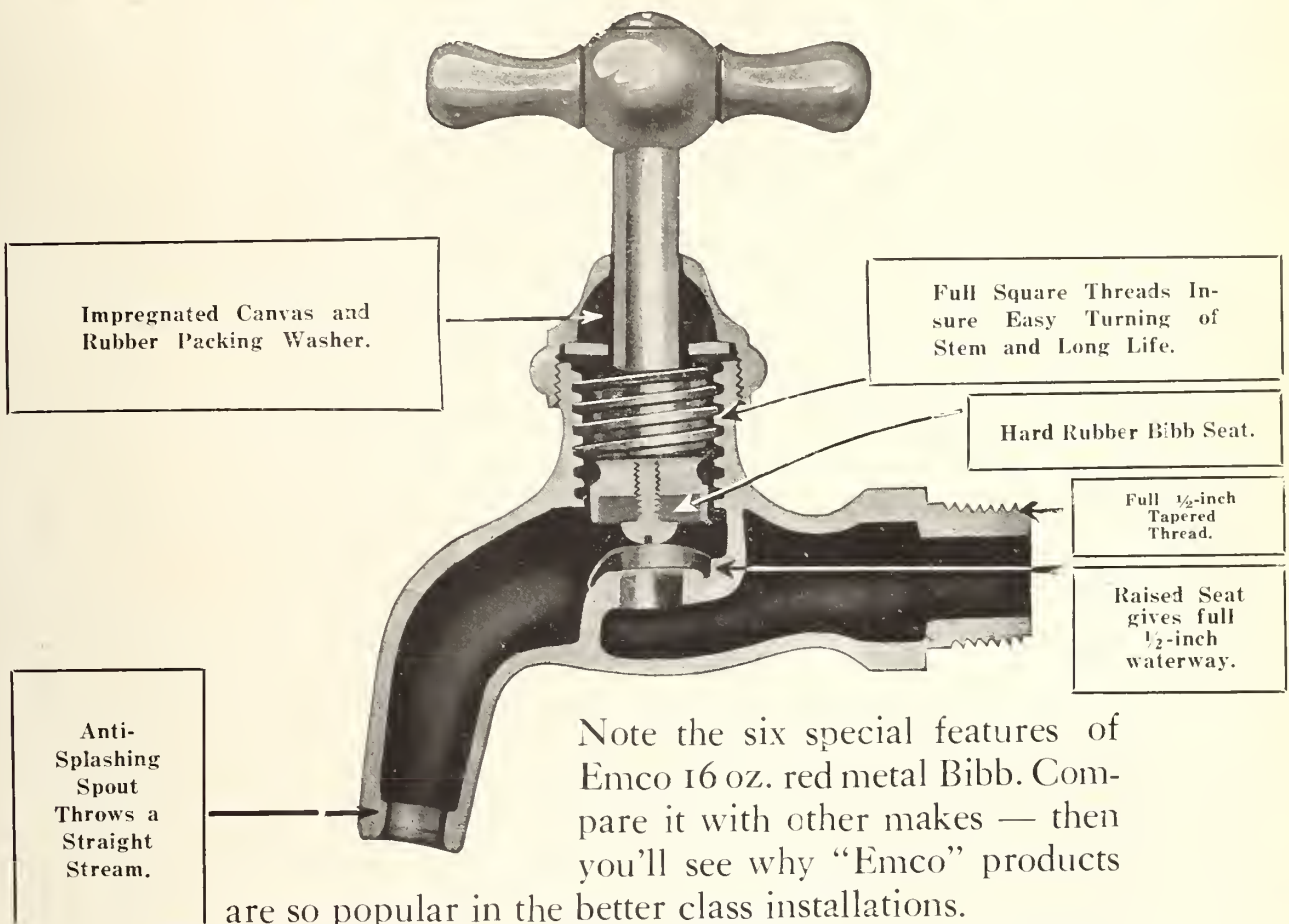
Plumber and Steamfitter of Canada

Vol. XVII.

PUBLICATION OFFICE, TORONTO, AUGUST 1, 1923

No. 15

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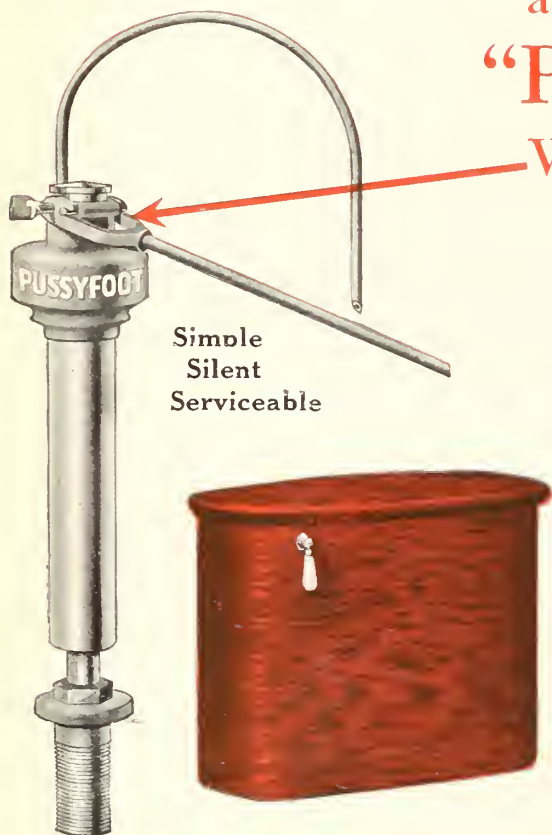


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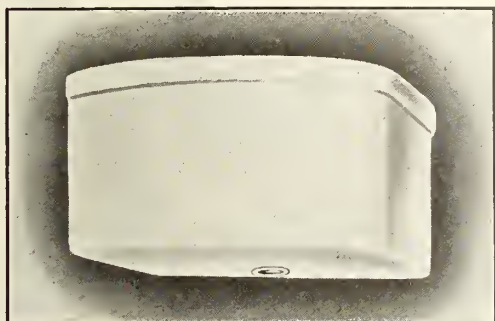
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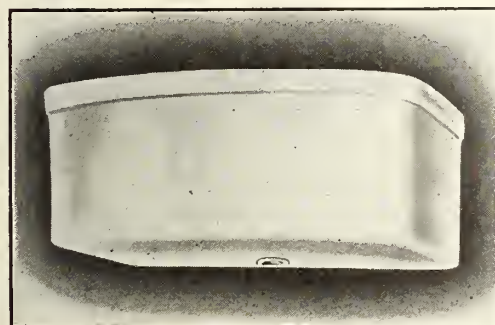
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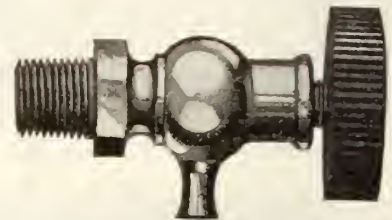
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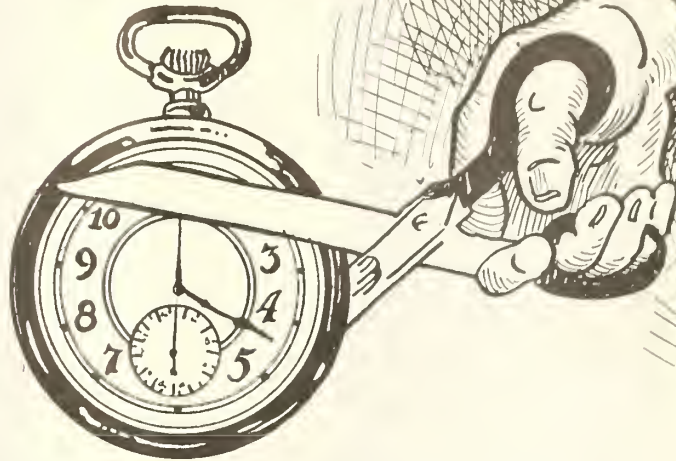
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The Williams will cut nine-tenths off the hours it has taken you to cut your pipe by hand.

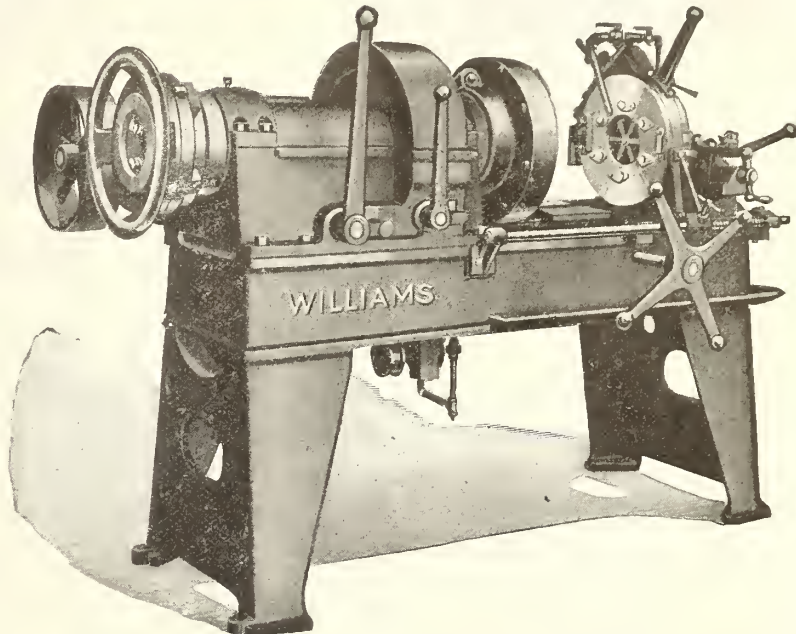


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Not only will the Williams cut, thread and ream your pipe in one-tenth the time, but it makes cleaner cuts and more perfect threads.

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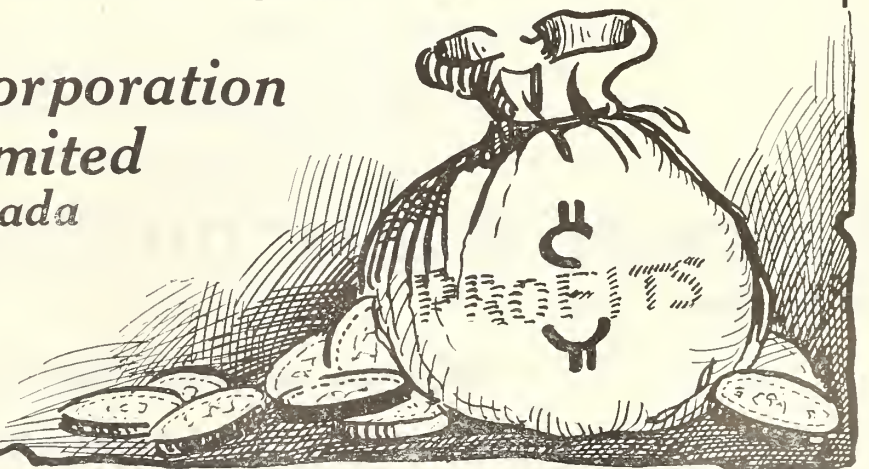
Our booklet, "Smashing Costs and Boosting Profits," tells you all about "Cutting the Hours" on pipe threading and cutting costs. Write for it to-day.

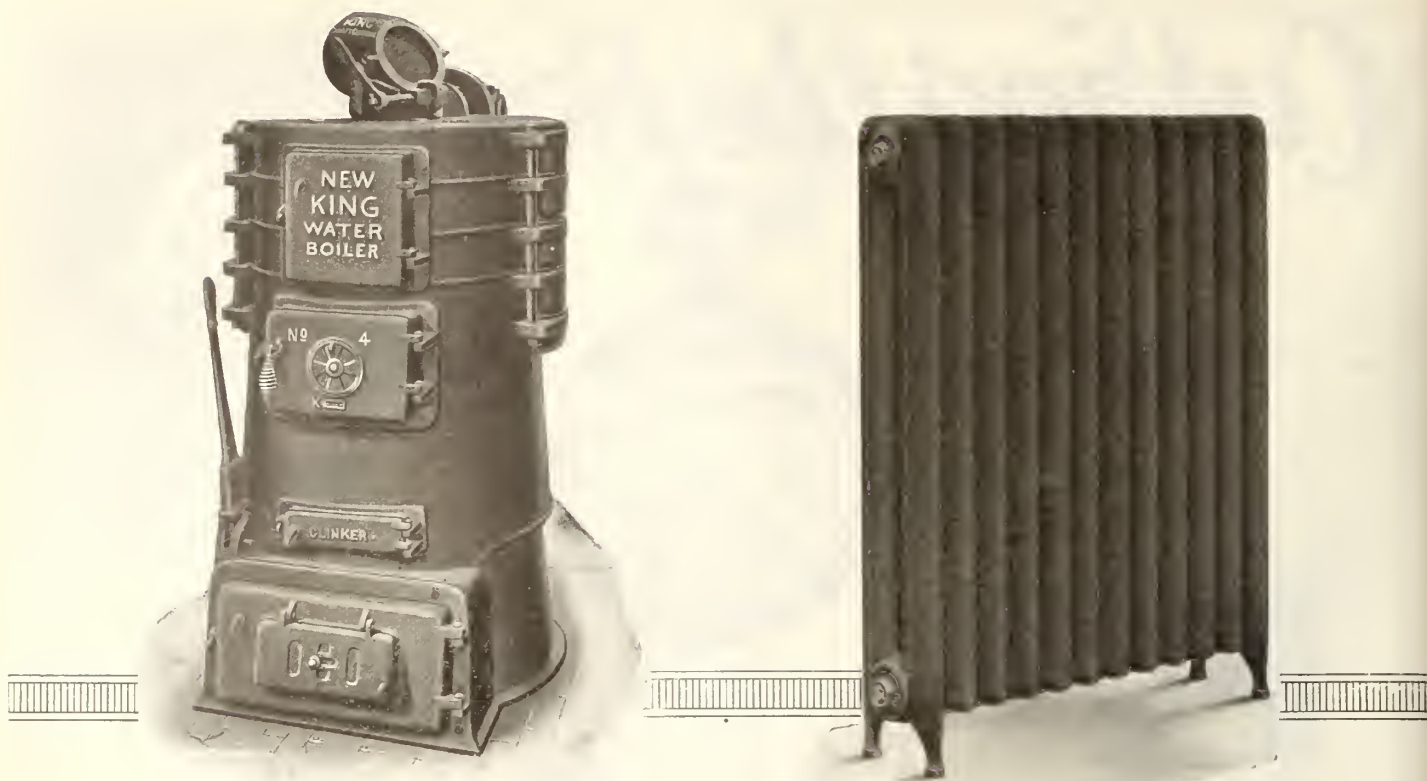


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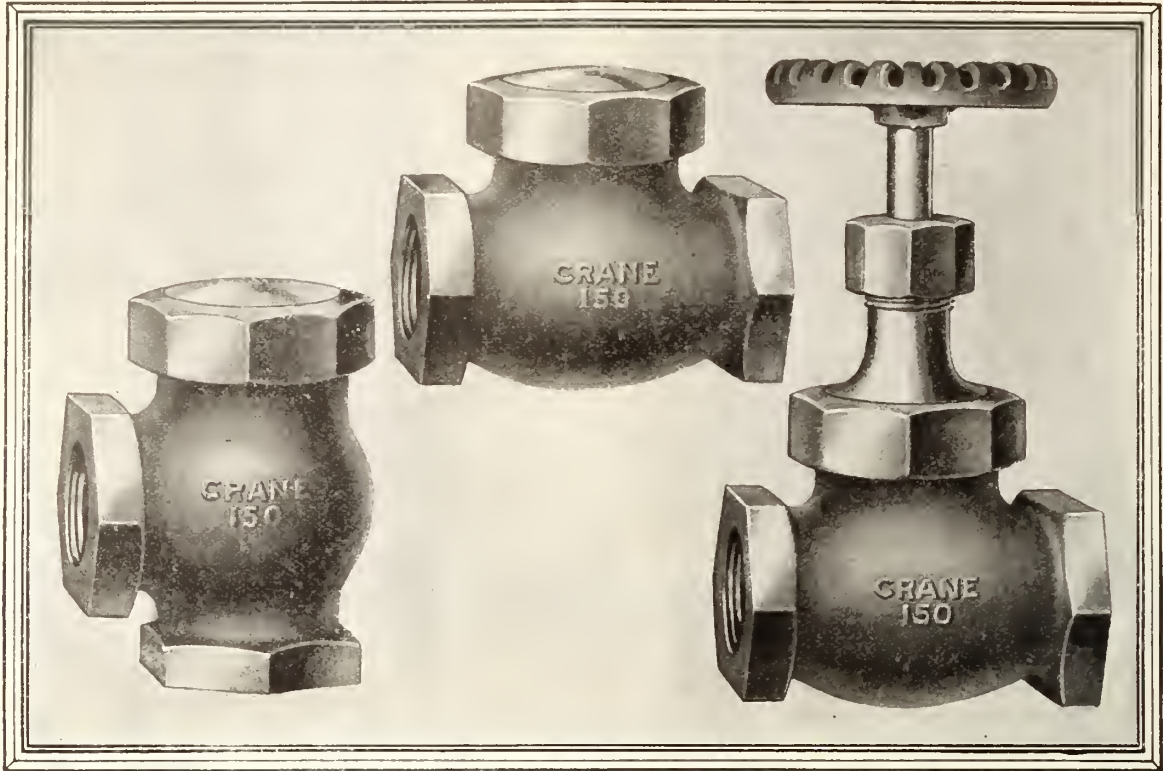
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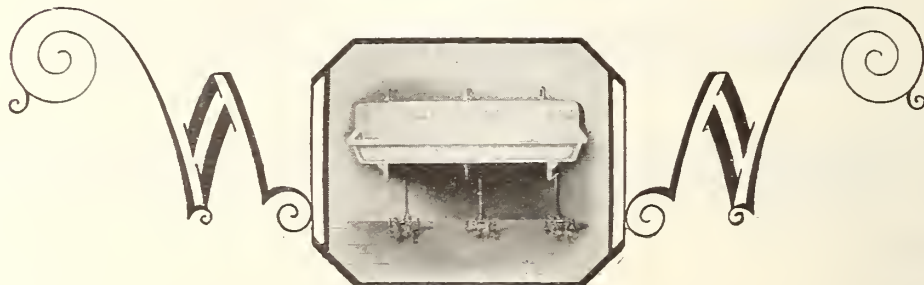
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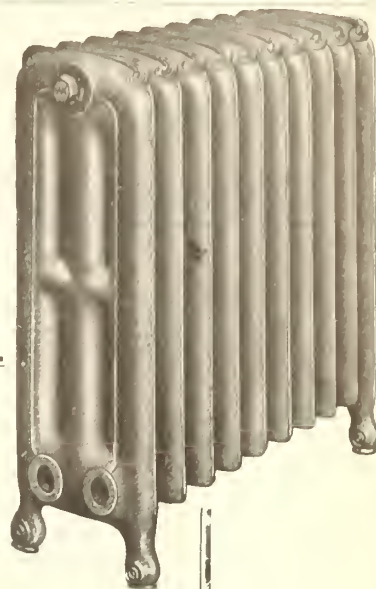
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Works: Montreal, Canada, and Ipswich, England*



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Daisy Boilers

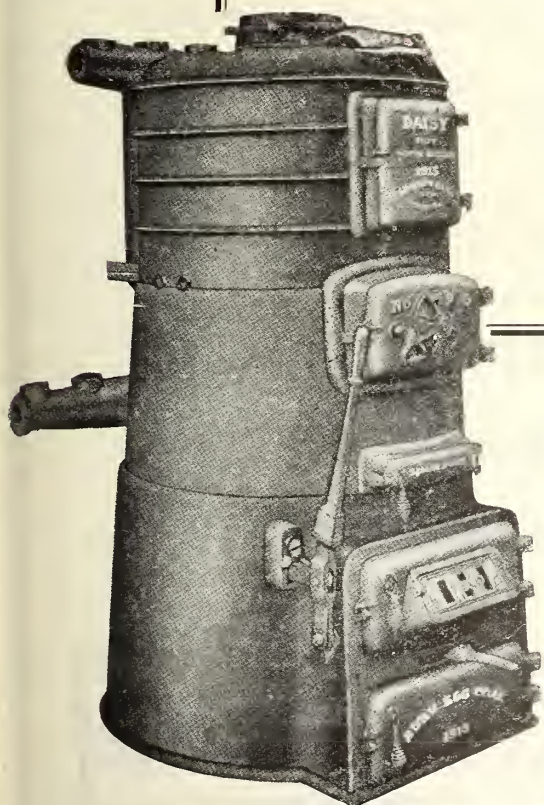
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Keeping Everlastingly At It Brings Success.

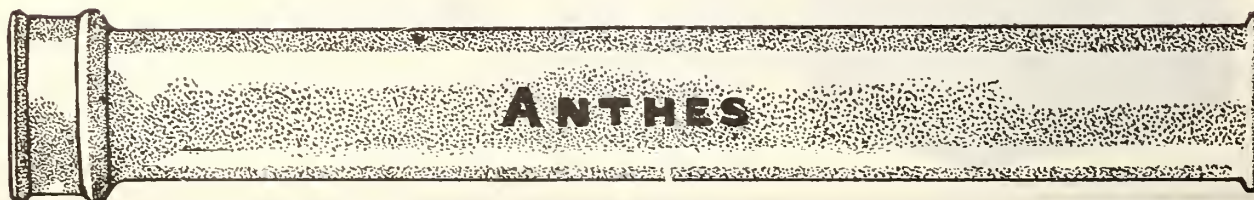
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SANITARY ENGINEER

PLUMBER AND STEAMFITTER OF CANADA

ESTABLISHED 1907

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No. 14

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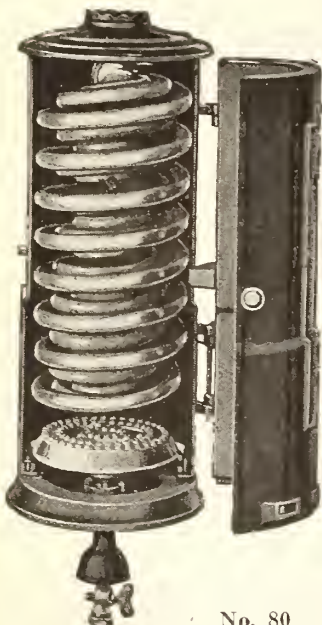
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Vol. XVII

TORONTO, AUGUST 1, 1923

No. 15

Says Definite Progress is Being Made in Canadian Rural Sanitation

Big Field for Plumbing and Heating Equipment Being Rapidly Opened Up—Setting an Important Precedent for Generations to Come—Western Plumbing Jobbers Report Good Volume of Business on Books—Another Good Crop Will Help

Based on an interview of Sanitary Engineer with Major L. L. Anthes, Managing Director Anthes Foundry Co., Toronto

JUST returned from a series of business trips which have taken him to Western Canada and to various parts of Ontario and Quebec province, Major L. L. Anthes, Managing Director Anthes Foundry Co., Ltd., has outlined some of his impressions to Sanitary Engineer.

Concerning the West, he is of the opinion that if the bumper grain crop which is now in prospect really materializes, Western business will be helped considerably by reason of the fact that much of the heavy indebtedness which now overhangs practically every part of the prairie provinces will be liquidated. Several good crops were necessary at to-day's prices to place the Western farmer in position to go ahead with a clean sheet and plan on extensions and additions without having to be too considerate of his financial position. The farmer's inability to buy sanitary equipment, farming machinery, etc., was said to have been acting as a considerable brake upon these departments of business and credit conditions throughout practically every line were said to offer much room for improvement. Contrary to the opinion held in some quarters, last year's crop was not so profitable to Western farmers that they were able to liquidate much of their indebtedness, but it was felt that a good crop this year will, providing prices do not suffer by too rapid marketing, help the situation considerably. Southern Alberta was said to have prospects of the best crop in its history.

Building

Building was reported to have slackened off in Calgary and certain other prairie cities according to permits, though these cannot always be taken as a fair indication of the amount of building to be done. A certain amount of replacement work was keeping plumbing and heating engineers fairly busy in some of the larger centres. Plumbing and heating supply firms reported considerable business on their books, to be closed out this summer and early fall, and expressed confidence that gradual improvement would be noted as the time for harvest

came nearer and after the crop was marketed. Manufacturers of harvesting machinery were looking forward to improved buying sentiment among Western farmers in August, when the crop indications were a little more definite and providing prices are maintained.

There was said to be more of a tendency toward mixed farming in many parts of the West and this, according to Major Anthes, would gradually remove much of the speculative nature of Western farming activities.

Need Immigration

The outstanding need for more immigration was emphasized, it being pointed out that this need was very apparent in many parts of both eastern and western Canada. In the West additional settlers of the right type would help to market the crop, it being pointed out that this year as in all years when a bumper crop is in prospect, the problem of taking it off is developing seriously. Such settlers would also help to put additional acres under cultivation. The recent action of the Canadian Senate in refusing to sanction the building of certain branch lines to serve new agricultural districts was thought to be much out of line with the desirable development in this direction.

Despite this temporary condition in the West, Major Anthes was of the opinion that the progress being made in rural sanitation throughout the country as a whole, and the great need for sanitary facilities on the farms, justified Western plumbers in going aggressively after such business. True the average Western farmer was looking twice at his money before spending it, but as a rule he was willing to spend money if he could see possible returns.

"What can the Western farmer buy which is of more lasting quality and will give such service and lend so much additional comfort to his home life than modern sanitary equipment?" asked Major Anthes, pointing out that this was the basis on which prospects could be approached. One of the big problems was

(Continued on next page)



MAJOR L. L. ANTHERS

Plumbing Legislation May be Revived

Ontario Sanitary Measures Introduced by Hearst Government Likely to be Made Law by Present Legislature, Say Those Interested in Undertaking

THERE is a strong possibility that when the new Ontario legislature meets, one of the important measures that will occupy its attention will be that of the plumbing legislation which was brought up by the last Conservative government in power. It will be recalled that this government's tenure of office came to a close before the plumbing bill had received its final reading and that the bill was then shelved by the incoming U. F. O. government, nothing further having been done with it up to the present.

Despite its dormant condition, however, it has by no means been forgotten. As late as this May the Ontario Society of Domestic, Sanitary and Heating Engineers, assembled in convention in Toronto, discussed the present status of the legislation at considerable length, as will be recalled by readers of Sanitary Engineer, where a full report of the convention proceedings appeared.

At that time it was mentioned in the report of Secretary Frankland that the provincial bylaw was all ready, awaiting the signature of the lieutenant-governor, a statement to which exception was taken by Wm. Newell, of Hamilton, who stated that no schedule was available to be worked on because the proposed bill had been brought up by a former government which had failed to pass it and that it was now dead as a consequence.

President Swanston's reply embodied the following information: "What we have is a proposed provincial regulation.

Unfortunately that regulation has not become law. That is due to the fact that it has not been endorsed by the lieutenant-governor or provincial secretary. While it is not a legal measure, the man who rendered assistance has expressed the opinion that if each of the various municipalities throughout the Province saw the necessity of adopting any part of the proposed measure that ultimately the provincial legislature would have no other course but adopt it as a whole."

It has been felt that, whereas the fact that the late U. F. O. government did not have a clear majority in the House and was not, therefore, so ably fitted for the handling of contentious legislation, the large majority enjoyed by the present government should aid materially in passing such bills as the plumbing bylaw.

Provincial Sanitary Engineer F. A. Dallyn, who has interested himself strongly in support of the proposed legislation, had not yet returned from his summer vacation when a representative of Sanitary Engineer visited his offices recently, but members of his staff expressed the opinion that there was little doubt but what the matter would be gone into on Mr. Dallyn's return, and that if investigation showed that the time was ripe for once again bringing it to the attention of the authorities, this action would be taken without delay.

Big Decline in Imports of Baths, Closets, Sinks, Etc., From United Kingdom

Stamped and Coated Products Secured in 1922 Only One-Quarter as Great as in Years Immediately Preceding—Down to \$5,661

THE falling-off in the importation of stamped and coated products such as baths, tubs, closets, lavatories, sinks and laundry tubs from the United Kingdom, is a subject which has been one of much comment of recent months. Whereas 1919 and 1920 had seen Canada importing these goods from the United Kingdom, particularly Scotland, in good quantities, imports for the year 1922 were only about one-quarter those of either of the two years immediately preceding.

In 1920, Canada imported these wares to a total value of \$111,211, of which amount \$20,460 came from the United Kingdom. In 1921 the figures for the total were down to \$65,356 but those of the imports from the United Kingdom remained well up to the mark at \$21,396, a slight increase over the previous year.

In 1922, however, when the total of these imports had risen up to \$92,823, the imports from the United Kingdom dropped down to \$5,661. When it is considered that this extremely low total contains purchases from a number of firms, it will be seen that none of the British firms selling to the Canadian trade have enjoyed the business that was theirs in the years immediately preceding.

On the smaller products, such as agate, granite or enamelled iron or steel ware, a different story is told, though here, too, the figures are deplorably small when compared to those of pre-war days, even though a slow climb is being noted. In 1914 Canada's imports of such goods from the United Kingdom were valued at \$75,132. In 1919, they were but \$642, in 1920 this total was nearly

trebled to reach \$1,864, in 1921 it had risen to \$3,288 and in 1922 was up to \$5,515. The total imports of these goods last year were valued at \$90,886 of which amount, goods to the value of \$78,768 came into the country from the United States, as compared with imports of \$202,951 from that country in 1914 when the total importations reached \$368,619.

Taking the total of all stamped and coated products imported into Canada last year, though, the United Kingdom is seen to be far below her position of pre-war days. The total of these imports in different years has been: 1914, \$1,275,318; 1919, \$2,232,838; 1920, \$1,863,692; 1921, \$1,909,167; 1922, \$1,511,308. During the same years, the total of these goods being imported from the United Kingdom were as follows: 1914, \$227,926; 1919, \$50,790; 1920, \$71,033; 1921, \$188,437; 1922, \$77,705.

SAYS DEFINITE PROGRESS

(Continued from previous page)
said to be the tendency for farmers to leave certain Western agricultural districts and to leave the rural districts in Eastern Ontario for the larger cities. Much of this could be stopped if rural life was made more attractive as was possible with modern conveniences.

"Definite progress is being made in Canada in connection with rural sanitation," pointed out Major Anthes, who referred to statistics showing an increasing number of syphons and other equipment for septic tank installations. It was his opinion that the active steps being taken at present to show the value of such equipment in rural homes was having effect.

"In connection with rural sanitation," he said, "I was interested in receiving information from an authority recently to the effect that proportionately Canada is now ahead of the United States in rural sanitary installations, whereas only a few years ago the situation was the reverse. This is a particularly desirable situation not only from the standpoint of immediate business, but because it sets a precedent which will make it very much easier to sell such equipment in future as our population increases.

Asked concerning the difficulties sometimes experienced with septic tanks particularly in the very cold weather of Western Canada, Major Anthes stated that such difficulties had practically disappeared since the trade became more conversant with septic tanks and that the broader recognition of the fact that the piping carrying the effluent to the disposal field was less likely to give trouble when placed eighteen inches below the surface of the earth, had put an end to much of the difficulty from freezing. Bacteria action is necessary to keep the effluent from freezing, plainly evident from the fact that farmers do not place their grain seed away down in the ground where there would be practically no germ action. The same principle applied to septic tanks effluent, and an understanding of this principle greatly minimized the danger.

Gas Heater Campaign Which Plumbers Could Conduct

THE gas company at Battle Creek, Michigan, decided to put on a hot water heater campaign. The campaign was started April 7 and ended three weeks later. And in those three weeks there were sold 207 tank heaters and five automatic heaters. Also ten others, for good measure, on the two days following the close of the campaign.

The total cost of the campaign, exclusive of the time of the regular force of gas employees, and the services of one salesman for three days, was \$360. This amounts to about \$1.62 as the selling expense for each heater.

The gas company mailed 7,000 circular letters to prospects. It also ran eight newspaper ads in two local papers. The largest ad was sixteen inches long by five columns wide, and the smallest was eight inches by three columns. All told, 736 inches of newspaper space was used.

In the newspaper advertising the company talked price and terms almost ex-

clusively, which are the things to talk in the heat of a campaign.

It may be interesting for those who are interested in advertising to know this: The days following the nights when no ads were run, sales fell off. Form letters create an interest, but paper advertising clinches sales.

The company maintained a good window display during the campaign.

The heaters were sold for cash; also on time payments—a dollar down and a dollar a month.

Now the point of all this is as follows: Two hundred and twenty-two hot water heaters were sold in Battle Creek that might just as well have been sold by plumbers. This thing has happened not only in one city, but in many cities, and, sad to say, it keeps on happening. One plumber in a town, or an association of plumbers in a town, can plan a campaign, and do what gas companies are doing.

his credit; express money orders; travellers' cheques and postal money orders. Two cents in stamps if the amount does not exceed \$50, two cents for every \$50 or fraction thereof up to \$2,500 and on amounts exceeding \$2,500, the maximum tax of one dollar.

Amendments to Section 3, paragraph 1, are such as to have the effect of making subject to the tax all receipts for \$10 or upwards by or on postcards, form letters and letters, which formerly were exempt.

In connection with receipts which have not been stamped in accord with the regulations there is the following provision:

May Be Stamped Within a Month

"A receipt given without being stamped may be stamped within one month after it has been given, upon the following terms: The stamp shall be affixed to the receipt in the presence of any collector of customs and excise by the person who gave the receipt, and shall be cancelled in the same manner as provided for all other cancellations, by writing across it. Before such person may affix the stamps he shall pay to the said collector of customs and excise a penalty of ten dollars for the public uses of Canada. The collector shall write on the receipt a certificate to the effect that the stamp was affixed in his presence by the person who gave the receipt and that such person before affixing the stamp, paid to the said officer the penalty of ten dollars; and the certificate shall bear the date on which it was given and shall be signed by the officer."

Legal Aspect

Changes in Section 3 also deal with the legality of unstamped receipts in the courts. Upon production as evidence

(Continued on page 14)

Must Not Use Post Office Stamps for Excise Taxes after October 1

Special Excise Stamps Must be Used for Cheques, Receipts, etc.—After a Month a Receipt can be Stamped Upon Certain Terms and Payment of Penalty—Legal Value of Unstamped Receipts

DETAILS of the official regulations issued to customs collectors in connection with the excise tax changes coming into effect on August 1 and subsequent dates, as secured by Sanitary Engineer, sets forth some details which plumbers should keep before them, at this time. These details will answer enquiries such as are now being made by operators.

Changes to be made effective from October 1 next, according to latest advice cover the use of Post Office stamps for excise taxes in the following regulation:

"On and after October 1st next, postage stamps may not be used in payment of stamp tax on cheques, bills of exchange, drafts, promissory notes, bank statements for advances or overdrafts, receipts, stock or bond transfers, express money orders, travellers' cheques, matches or playing cards, that is, 'Excise Tax Stamps' only must be used for payment of the stamp tax in all such cases."

Maximum Amount on Receipts

On August 1, 1923, Sections 1, 2 and 3 of the Special War Revenue Act will be deemed to have come into effect. This provides that \$1 will be the maximum amount of tax payable on cheques; bills of exchange payable on demand or at sight or on presentation, or within three

days after date or sight; receipts for money paid to a person by a bank chargeable against deposit of money to

Chinese Steal Plumbing

VANCOUVER, B.C.—Theft of lead pipe and other plumbing materials, particularly by Chinese, have become so frequent in this city that owners of houses are being asked to co-operate with the police department in restricting the thefts as much as possible by having all plumbing stamped in such a way as to make identification possible. Chief James Anderson stated that something of the kind should be done because the department found it possible to recover large quantities of stolen goods but often found owners unable to identify any particular piece of lead pipe or other plumbing materials as their own property.

Incidentally, the chief remarked, several of the Chinese who make a practice of lead pipe stealing are so methodical that the police quite often are able to trace the thief by the peculiar manner in which the pipe is cut.



Country Is Full of Splendid Opportunities Such As This for Plumbers

Ontario Town Advertised for Practical Plumber and Tinsmith,
Now Conducting a Growing Business and is Highly Respected by
His Townsfolk—Believes in Giving a Square Deal

WHERE THE OPPORTUNITY LIES

THERE are, no doubt, many men conducting what they think to be a fairly good business in the plumbing and heating industry in some of the small towns in Ontario, but, nevertheless, there are literally thousands of real good chances still awaiting men who really know the business.

Edwin Newsome, contributing editor of Sanitary Engineer, states: "I have had the opportunity of seeing conditions as they are and can assure even the most skeptical that what is sorely needed in our rural districts, before any great strides can be made towards furnishing 'city conveniences on the farm' is, that real good mechanics establish themselves in small rural towns and villages. There are lots of botchers, lots of men who claim to be plumbers and practical men who have not even learned how to do some of the most simple jobs. If some of the owners of small shops in our larger cities would only pick up and locate in these small centres, they would begin to make money right from the start.

"Talk about teaching the farmer to install his own plumbing is rather too far fetched a yarn, and this has been talked of by many because farmers have been so disgusted at the miserable attempts made to do a good job by so-called or self-assumed 'mechanics,' that the farmer has been led to believe he could do a much better job. As one farmer said to me: 'If that kind of a job represents good plumbing work, I can beat it into a cocked hat.' But when told just what a good job would look like, he admitted that it would be impossible for him to even attempt such a task.

"This is merely given with a view of trying to convince the reader that there are lots of good openings for smart men. Men who can give proper service to the public, and as an illustration, one example alone is going to be reported."

A. M. ROBERTS, Sanitary Heating Engineer, Otterville, Ont., is conducting a splendid business in that town. He is highly respected and praised by many of the prominent businessmen of Otterville.

These expressions given Sanitary Engineer, resulted in an interview with Mr. Roberts and this is how he replied to a number of questions:

"How did you happen to strike Otterville Mr. Roberts?" To which he replied: "About three years ago, I was working in Port Perry. I and my wife had planned to go west. When I noted an advertisement in one of the Toronto papers which read something like this:

Wanted:—A practical plumber and tinsmith, with wide experience, to locate and establish a business in Otterville.—Otterville Board of Trade.

"I came to Otterville, met the men who had been responsible for the advertisement, gave the town a 'once over,' was well impressed and here I am, and am doing a very nice business. The best business men in the town and surrounding districts give me their work and as a rule I have all I can handle."

Mr. Roberts started to learn the trade about 21 years ago, is a Port Perry born man and is blessed with a life partner who hails from Lancashire. He has done a little travelling about the province and in that way has gained a mass of

valuable experience. His first move was to go from Port Perry to Bancroft. Then he worked in Toronto for upwards of four years, then went to Elmvale for about a year and back to his home town, Port Perry, at which place he labored for over eight years.

Mr. Roberts is well versed in many branches of rural sanitation and has installed innumerable water supply systems and complete farm sanitary equipments.

Mr. Roberts has given considerable thought to improving the local water works system and hopes to see the town install a couple of large steel pneumatic tanks to furnish the town with water under air pressure. His plan is a very good one and the only one that can be properly protected from frost and assure a real good water service for Otterville.

REPRODUCED "SANITARY ENGINEER" EDITORIAL.

In a recent issue of the Ottawa Citizen, prominence was given to a reproduction complete of the editorial appearing in Sanitary Engineer, entitled "Saving Fuel Waste."

He is not only a good practical man but is somewhat of a sport, being a member of the bowling club, and a very able angler. Mr. and Mrs. Roberts are seen posing before the camera man and holding one of the "poor fish" they have landed. He is a real sport, greets each and every one with a pleasant smile and if any one of the readers of Sanitary Engineer happen to call on friend Roberts he will as likely as not invite them to have their lungs tested. The writer didn't bite, because of the fact that he had done so in the years of long ago. It is one of those lung testers which is liable to blacken one's countenance.

MUST NOT USE POST OFFICE STAMPS

(Continued from page 13)

in court or before any trustee under the Bankruptcy Act, of an unstamped receipt, notice shall be taken by the judge or other official of the omission and the receipt may, upon payment to the judge of a penalty of twenty dollars, be received in evidence. It is provided definitely that except as provided in the foregoing, a receipt liable to taxation under this section shall not, except in criminal proceedings, be given in evidence or be available for any purpose whatsoever, unless it be duly stamped in accordance with the law in force at the time when it was given.

Instructions issued to collectors regarding stamp tax on receipts of ten dollars and upwards, provide that effective from August 1 letters including form letters forwarded by mail, also postcards acknowledging the payment of money of ten dollars and upwards are subject to the stamp tax on receipts. The regulations as formerly outlined in Sanitary Engineer, eliminating from tax counter sales slips and cash register tickets, provided they have no words on them implying or stating acknowledgment of the receipt or the payment of money; the taxing of payrolls, individual freight bills and periodical statements of same, customs house brokers' receipts, insurance policies, receipts drawn out of Canada but not valid until countersigned in Canada, etc., are little changed. Voucher cheques and cheques with receipts endorsed thereon, when drawn upon or addressed to a bank are not taxable as receipts. Neither is remitter's counterfoil, being part of a taxable express money order, taxable as a receipt.

Shows That Plumber is Entitled to Fair Profit and Not Charity

Maritime Plumber Keeps List of Those Planning on Building and Gives Them an Active Follow Up—Makes No Excuse for Wanting Fair Profit—Completed Jobs Used as Advertisement to Prospects

"THE only way I know to get business is get out after it," says A. L. Haley, a maritime plumbing and heating contractor. "I keep a list of all persons who plan on building houses for their own use. Just as soon as I get an addition to the list I call around on the man or woman, or perhaps both. I point out that I am capable of installing plumbing and heating systems and refer to work I have done for people who built their own homes. If they decide, as they usually do that they will take some time to think the matter over, I allow them some weeks, and then I get in touch with the parties again. This time I bring charts showing some of the work I have completed in the neighborhood, and also bring testimonials from several of those I have filled contracts for.

"I go over the details, showing how money can be saved by using certain kinds of material, and suggesting things here and there. I take the house-owners entirely into my confidence, telling them frankly I must have my profit. There are some contractors who try to create the impression they are working for charity. But I believe charity begins at home and any person who believes cheap work is worth the money is an oddity. Very often I have some trouble with the women—wives or mothers or sisters or daughters of the men who are having the houses built. Women are not always reasonable. Any man knows that. As I have been married for twenty-five years and have daughters I realize that we must put up with a great deal from the dear ladies. I have had women ask

for a contract price just half what I asked.

"Taking the parties closely into confidence I name the different materials I will use in the contract, and what fixtures I will install if I get the contract I am after. If that does not get the contract, I leave and persuade one of my clients to call on the prospect, and tell him the class of work we do. I have not found much difficulty in getting some of my former customers to do this for me, as in the past I have tried to fill all my contracts as efficiently as I could, and if anything proved defective I made it right before I called the contract completed. So, because I treated all my customers properly, all I have asked have

(Continued on page 21)

The use of attractive groupings of sanitary and heating equipment combined with well-written showcards bearing effective messages are shown herewith as used by W. G. Borland, plumber of Montreal. For the hot weather one card asks: "Hot? Buy a shower and be cool." Others point to the danger of sickness from faulty plumbing, and with the position the plumber holds in the community.

Tinsmithing and Sheet Metal Work

Patterns for Round Torpedo Dash Hood

Written for Sanitary Engineer by O. W. KOTHE, Principal St. Louis Technical Institute

THE dash hood of an automobile is made in a variety of designs, although they do not permit the variety of creations which the rear body permits. Still these dash hoods can be designed to give grace and utility.

In our drawing, the top body of dash hood forms a uniform curve, described with radius R and r.

It is best to first draw the side elevation, making the points in side elevation as 1-3-5-7-9, etc., to base line.

Then with dividers pick the lines, as 1-2; 2-3; 3-4; 4-5, etc., from plan and set the solid lines on top of diagram, and the dotted lines on the bottom of diagram.

This gives the points on the vertical line, and when over to heel of elevation thereby establishing points the height and length, also curve 1-13 to suit conditions.

After this, detail the front end elevation to suit the width of car, and height of side elevation.

Divide each curve in equal spaces as 1-9 and 2-8. Join these points with lines,

thus dividing the flare into triangles as shown.

From each point in the heel as 1-9-14, project lines 1-3-5-7-9, etc., in side elevation.

Observe this gives the altitudinal heights, or in this case the lengths from front to curve.

To find the true lengths, drop lines from each of lines are drawn to those corresponding points in horizontal line. This gives the true lengths as shown.

Now observe the heel of end view is not correct girth, nor is 1-9-13 of side elevation a true girth. Hence we have to develop one.

Pick the spaces, as 1-3-5-7-9, etc., 13 from side elevation, and set as 1'-3'-5'-7', etc., above end view.

Square out stretchout lines, and erect lines from all points in heel of end view.

Where intersections are made as at 3"-5"-7", etc., trace a line and you have the developed girth.

To set out the pattern, draw any line as 1-2 of elevation, for the small end pick the girth from the spaces 2-4-6-8, etc., of end view.

But for the large end, pick the girth from the developed girth as 1'-13" and set as 1-13 in pattern.

Pick true length 2-3 and using 2 in pattern as centre, cross arcs in point 3. Then pick true length 3-4 and using the new point as centre, cross arcs in point 4. Then strike arcs as at 5 and 6, and cross these arcs with true lengths 4-5 and 5-6.

Repeat in this way until the full pattern is finished. Laps for attaching to the chassis and also for putting the reinforcement bar along the heel are allowed extra.

WILL DISCARD FIFTEEN FURNACES

Kingston, Ont.—The House of Providence is to instal a new central heating plant at a cost of \$30,000. It was heated heretofore with fifteen furnaces but the fuel situation has made a new system necessary.

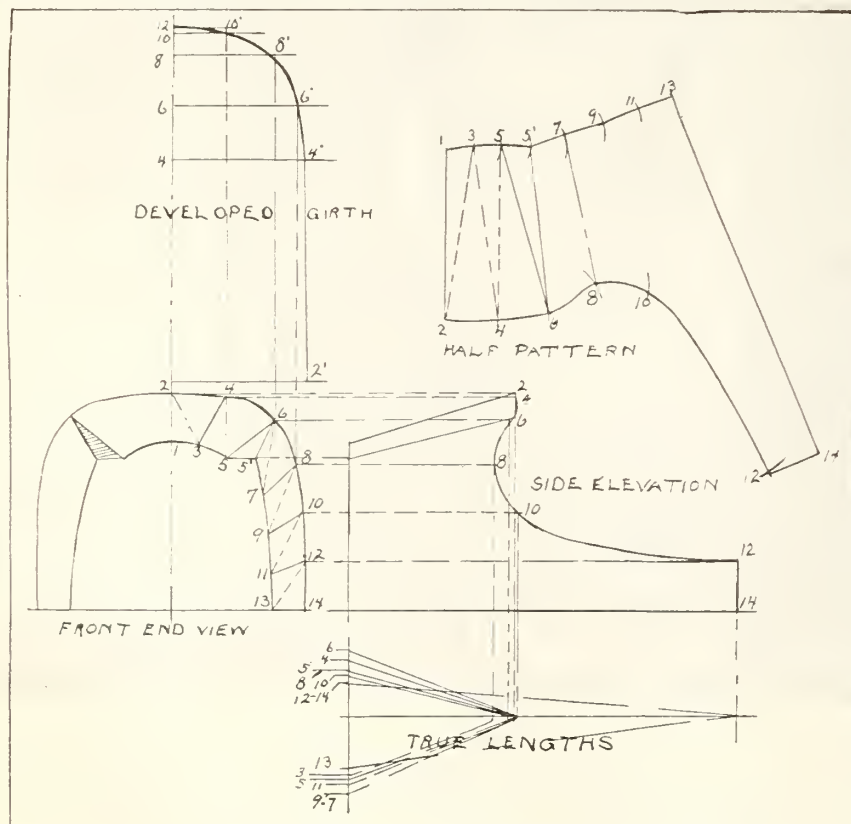
HAS HELPED DEVELOP CALGARY

Calgary, Alta.—E. J. Young is a Calgarian who has helped a cow-town to become a great city. He came to Calgary in 1900 and started the Young Plumbing Co. in 1902. Since then his firm has equipped most of the large blocks in Calgary and district and he is looking forward to another great building period. He saw the present skyscrapers spring up from what he had known as pasture land and considers that 100,000 population will be passed before many years have gone. "We are on the straight road to another spell of prosperity," he declared.

ENGINEER RECOMMENDS FILTRATION PLANT

Pt. Colborne, Ont.—Reasons why Port Colborne must install an expensive water filtration system in the near future, its probable cost, and the possibility of securing new customers for the purified water, were clearly explained and discussed by Engineer Dallyn of the Provincial Department of Health at a public meeting.

The engineer declared that the Board of Health had been trying to get Port Colborne to improve its water supply since 1916. At that time the reason given for not improving the system was that the government had a scheme which would benefit all the towns along the Welland Canal. The government had such a plan at the time, but did not attempt to put it into action.



Patterns for Round Torpedo Dash Hood.

Stimulating Mid-Summer Business



NAT. T. E. B. SERVICE EVANSVILLE, IND.

Wash day brings work enough without having to pump and carry water. Why not make wash day less exhausting by installing a (.....) Farm Water System?

All the water you need—hot or cold—at a twist of your wrist!

YOUR NAME HERE

Phone No. Address

It is Only Fair

to provide a separate bathroom for the servants. They appreciate this thoughtfulness; and it saves embarrassment for both the family and the servants.

A modern bathroom can be installed, in the servants' quarters, very economically.

Ask for particulars.

YOUR NAME HERE

Phone No. Address

How to Order Advertising Material

Advertisements in each issue will form a complete month to month advertising campaign for your use.

These are only a few of the electros available in this service. Complete catalog of all illustrations available to date will be mailed on request.

The catalog gives serial numbers on each illustration and the price is quoted. Prices range from 30 cents to \$1.00 for electros according to size.

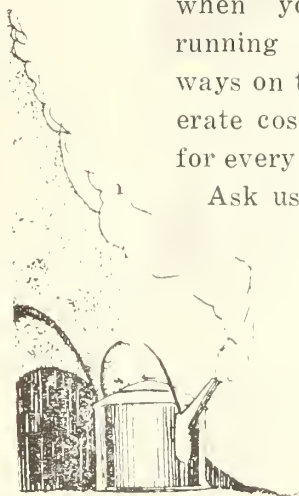
In ordering from catalog write plainly the serial number of the illustration and send remittance to cover the order in order to save cost by avoiding book-keeping expense.

By Courtesy, National Trade Extension Bureau

Why Depend on a Tea Kettle

when you can have running hot water always on tap at a moderate cost? Hot water for every need, QUICK!

Ask us about it!



NAT. T. E. B. SERVICE EVANSVILLE, IND.

YOUR NAME HERE

Phone No.

Address



EXAMINE Plumbing Fixtures Carefully Before you Buy Them!

Buying a "cat in a bag" is poor business.

Since plumbing fixtures are expected to give years of service, it's only fair to yourself to go to an established, reliable Plumbing Dealer's store and see what you're getting before you buy it.

We guarantee our plumbing fixtures, and stand squarely behind every job we handle.

Time payment plan if you want it.

YOUR NAME HERE

Phone No. Address

The Mirrors of Selling Street

Don't Let Them Reflect Upon You

By JOHN E. ROSSER in Forbes Magazine



WISE N. HIMER is the super-salesman—the gink who knows all about the Science of Salesmanship but isn't worth a pewter smacker at selling. Expect him to get out and hit the ball like a common plug? By no means! He must stick around and tell the others what he knows.

Nothing less than an encyclopaedia would suffice to include his knowledge; so it is possible here to present but an inkling of his omniscience. He is, among other things, the world's greatest expert at sizing 'em up! Just let him give a prospect the up-and-down and that poor chap's inner soul becomes as public as Tut-an-amen's tomb.

The shape of the chin, the set of the ears, the expression of the eyes, the geography of the back of the neck, the position of the next-to-the-bottom vest button—whether it be weakly drawn in or pugnaciously thrust out—these things enable him at a glance to plumb the prospect's nature, slap on the correct descriptive label, and get set with Chat No. 7-B.

There is just one defect in Wise N. Himer's system of instantaneous classification. They are too much like the old lady's recipe for distinguishing between good eggs and bad ones. She said, as will be remembered, "Put all the aigs in a tub of salt water; and good aigs will either sink or float—I fergit which." If he encountered John D. down at 26 Broadway or up at Pocantico Hills he probably would suspect in him a certain financial knack, but if he saw him in a Bowery bread-line, he might have to let it go at this: "Th's is undoubtedly a face. If the eyes, ears and other features function as per specifications, that is all anybody could reasonably expect."

Of course there are different types of men. It would be foolish to pull on the oldest subscriber of the "Atlantic Monthly," the same spiel that would ring the bell with the man who can name all the front-page beauties of the Police Gazette for twenty years back. Nor would it be well to strike with a prospect who takes three minutes to think of his name the pace that would suit another who needs but two seconds to add four columns of figures abreast. There is a difference in the goods but it doesn't always show in the looks of the package.

Mind Crowded With Piffle

The duffers who don't know much about Salesmanship, but who stupidly turn in the orders, can't use any of Wise N. Himer's clever schemes for cataloging. They are so dumb they have to

wait for the prospect to open up—so that they may learn how he feels about it—then—towards them! They don't bank too heavily upon Wise's idea that a man is a fixed quantity. They say that the man who might give them the brutal razz would become positively sweetish if Mr. Dempsey shoved up the same proposition. Moreover, they say that the well-fed man clipping coupons would be a different bird if encountered hungry and holding a telegram advising him of his wife's elopement with the second chauffeur.

If Wise N. Himer could do the thing he professes, he would find poker far more profitable than selling. As it is, he reminds one of the threadbare touts who sell lists of the sure-shots for fifty cents.

In brief, Wise N. Himer's mind is so crowded with piffle he can't soak up the commonplace facts necessary for the job he is hired to do.

THE reason why none of the late books on the so-called psychology of salesmanship has enjoyed a distribution like that once attained by a certain bartender's guide is that when Eddie proceeding to shake one up he was

working with known ingredients, whereas selling is concerned with human nature—and you know how that is.

Some of the old fogies who sell the things that keep the wheels of commerce going say that the chief lack of most of these illuminating volumes is that they weren't written by Ring Lardner and Irv. Cobb. They had always thought, until they took a squint at these technical treatises, that all that was known for sure about the psychology of selling could be written on a post-card, with ample room left for love and kisses.

But these venerable fossils do seem to be informed as to two things, namely, how to start and what to do next. Therein they are sharply differentiated from G. Howe Footless, who hasn't got far enough along in arithmetic to put two and two together.

Footless is connected with a house—it can't be said that he represents it—that has something to sell and he offers it to persons in position to buy and who, properly handled, would buy. But his percentage column is good only for a laugh because he hasn't learned to furnish sufficient reasons for getting the other fellow to do the thing he wants done, and that, in all probability, he ought to do—which is about all that selling is.

G. Howe Footless might say that all this is very indefinite. It is—painfully so. A would-be playwright once asked Henry B. Miller for the inside info as to the absolutely essential element of a successful play. Henry came back with this: "Something that will supply two hours and a half of entertainment to a theatre audience."

The ability to put facts together and draw a conclusion is said to be the highest faculty of the mind.

Franklin didn't invent electricity—all he did was to figure out how he could harness it up with the payroll. Footless is no descendent of Franklin's. He has no knack for either analysis or synthesis; that is to say, he can't pick to pieces the possibilities of the thing he has to sell or combine them with the needs of his prospect.

Still sticking with the highbrow stuff it will be recalled that in physics the student is taught to compute the resultant of forces. That is, if several forces of varying intensity and different angles of impact strike a movable object it is easy to figure the direction the object will take and the distance it will travel.

Wise N. Himer



**The guy who
is ready to
hang on the
tag when he
has given
them the
once-over**

Selling is precisely like that—and that is why it is so well repaid.

G. Howe Footless gets pop-eyed with amazement at the achievements of real selling men. He thinks they sell with no effort at all, but he doesn't see that without making a ripple on the surface they have quietly seized upon enough motives to shift the prospect—that prospect—from where he was to where they wished him to be. And, to a reasonable certainty, if they could figure all this

G. Howe Footless



The salesman who carries a long pole past an over-crowded apple tree and can't think what to do with it

out in advance of the interview—from a knowledge of the prospect's likes and dislikes—they did so. The battle was at least half over when it started.

Until G. Howe Footless learns the importance of forethought and foresight and dynamic commonsense he had better not lose his appetite for Salvation Army soup.

A. BUSCH LEEGUR loses his nanny every time he whiffs. When he has done his stuff to the last impassionate note, only to find that his prospect has no more intention of monkeying with the dotted line than he has of touching a high-tension wire, he gets the gum-willies and slinks away completely sunk.

When his score-board shows about three goose-eggs straight he makes St. Vitus look as calm as the Statue of Liberty, and decides that since he is a total loss anyway he might as well begin shopping around for cyanide and fare-well hardware. Consequently, if temporarily he decides not to junk his mortal coil and yet, in that blue funk, walks into another wild beast's den, the man he talks to does not buy, of course; but is usually good enough sport to weep on his shoulder and lament with him the harshness of life.

A. Busch Leegur is a perfect example of unstale equilibrium. He lacks a gyroscope beneath his hat. He tells himself that he is the only man who ever drew a blank, in which self-condemnation, therefore, he is 100 per cent. nuts. For the man never lived who sold them all!

The boys who romp out to the diamond from the dog-house at the Polo Grounds are there not because they get them all, but because they get more of them than is customary in the tank-town leagues. The Bambino knows very well that he is going to let some perfectly sweet ones ooze right over the plate, but he is big gate-money because he also knows that under his law of averages he will get his share.

Out of that assurance comes a steadiness of nerve that enables the big-timers to be all set for each of the good ones and thus to stay in the Hall of Fame of .300 or better. A. Busch Leegur never has gotten next to Napoleon's maxim: "It is better to lose a single battle than an entire campaign."

He won't get anywhere until he thus orates:

"My job is selling. If the salesman didn't have a legitimate function he would become, under the law of supply and demand, as extinct as free lunches. As sound a thing as is life insurance, I doubt whether more than one per cent. of it is bought—the rest is sold. I guess people have to be compelled to do even the things they know they ought to do. So I'm going to fire both barrels. I understand in advance that I'm destined for some gosh-awful jolts, and thus I mean to keep my temper and if possible my sense of humor.

"And I'm going to offer my stuff in the belief that I have just as much right to my job as has the man to whom I'm talking. If he pulls the high-and-mighty vamoose on me without taking the trouble to see whether or not he could profit by what I'm telling him I'll bet I'll be on my job long after he has skidded out of his. And I won't be kidded by the fellow who boasts that no man can sell him anything. For such a boast is really the highest possible tribute to selling ability—it means that all that fellow has he got from experts who made it a painless operation. I'm going to get my share."



A. Busch Leegur



The small-timer who never has learned to lean up against the law of averages

Once he meditates earnestly in that vein he will find the scouts on his trail, and no Sunday supplement will be complete that fails to show him whaling one out of the lot.

DEPLERE LACK OF CONVENIENCES

St. John, N. B.—Lack of convenience stations in St. John, N. B., is deplored at the present time when this Eastern city is in the midst of the summer tourist season. Thousands of people from New England and the Eastern states and Upper Canada, accustomed to convenience stations and public shower baths and swimming pools are amazed at lack of these facilities in St. John.

WINNIPEG CENTRAL HEATING

Winnipeg.—Negotiations for the central heating of a portion of south Winnipeg through the activities of a company headed by B. W. Parker have not yet come to a satisfactory conclusion, although it is confidently believed by the promoters that an agreement will be reached shortly. The sub-committee of city council charged with negotiating the agreement with Mr. Parker has met several times recently and some two-thirds of the agreement has now been more or less satisfactorily arranged. The sub-committee has been unwilling to give Mr. Parker the whole of the city south of the Assiniboine and west of the Red River as exclusive territory, but have mapped out a large district in this area. Mayor Farmer has provided some opposition to the scheme, maintaining a dislike to giving away fresh franchises of this nature. Under the plan proposed by Mr. Parker, his company will purchase electrical energy from the city hydro on a ten-year contract, an aspect which has appealed to members of the sub-committee.

Heating and Ventilating Department

Heating and Ventilating Systems in Some Large Schools

Plenum System with Direct Radiation Only in Offices, Corridors, Shops or Special Rooms—Class Room Exhaust System—Calculating Heating and Ventilating Requirements

By JOHN HOWATT, Chief Engineer Chicago Department of Education

IN GENERAL, the Chicago practice in public school heating and ventilation is a plenum system with direct radiation only in offices, corridors, gymnasias, shops or other special rooms. The so-called "split system" of heating and ventilation wherein the heat losses in the class rooms are taken care of by direct radiation in the rooms themselves, with the incoming air warmed to a point where it is suitable for ventilation purposes only, has not been installed in buildings erected in Chicago for some years. It has been the opinion in Chicago that the class rooms are more certain to have ventilation when the heating of the rooms depends upon a predetermined air supply.

In the proper design and installation of any heating and ventilating plant a thorough co-operation between the architect and engineer must prevail in order to avoid having the architect proceed too far with the plans of a building before consideration is given to the proper design of the heating and ventilating system. It not infrequently happens that, boilers, for example, have to be fitted into cramped, out-of-the-way places, so congested that the firemen are scorched in their attempts to clean out the fires, jointed flue-cleaner rods have to be used in punching flues and tubes cannot be removed if they fail by rupture or corrosion; if those who design and install plants in this way were required to operate them the design and installation would be different.

The Chicago Plan

The situation in the Chicago public school system is very favorable because the board of education engineering and architectural staffs work together on all plans, co-operating in every way, and because those who are responsible for their maintenance and operation after installation. This avoids all division of authority and makes for designs that are economical and practical.

The operating engineering force in the Chicago public school system is a well-organized force of men who are represented by committees; these men are invited into the office of the chief engineer to go over proposed plans of new build-

ings and additions with a view of getting the suggestions of these practical operating engineers as to the workability of the proposed designs. It is our belief that in order to induce men to give proper care and attention to mechanical equipment, that equipment must be made readily accessible and proper working space must be provided. The design of the plants in the Chicago public schools is such as to give ample working space in all boiler, engine and pump rooms.

Boiler Plant Design

There are over 800 high-pressure boilers in use in the Chicago public schools at this time. About 100 of these boilers are water-tube boilers and most of the remainder are standard return-tubular boilers. A typical Chicago elementary school consists of a three-story building containing 32 class rooms, assembly hall, gymnasium, offices, etc. (Fig. 1). This size of elementary school building is duplicated oftener than any other. The typical boiler room equip-

ment for such a building consists of three 66 in. by 18 ft. standard horizontal-return tubular boilers with shaking grates for hand-firing. For plants of this size it has been found that this boiler is easy to keep clean and easy to repair.

The boilers are set with what is known as the Chicago Smoke-Department No. 8 furnace setting, consisting of brick bridge walls, wing wall piers and deflecting piers. This setting is efficient and the upkeep cost is low, but has the objection that with this setting it is difficult to eliminate smoke. This city is located in a territory where all of the larger plants burn the lower grades of bituminous coal mined in Indiana and Illinois.

If constant efforts are not made to minimize smoke the city would be covered with a cloud of filthy soot. School plants are especially difficult to operate without excessive smoking, because boiler settings are cold when the plants are started up in the morning, and because the load tapers off so materially after the first few morning hours, giving an excess boiler capacity with corresponding low furnace temperatures.

All of the boilers in Chicago public schools are equipped with high-pressure steam jets over the fire doors which are very useful in mixing the gases of combustion before they pass over the bridge walls and assist in cleaning smoky stacks. Experience here, however, has shown that the best furnace for use in

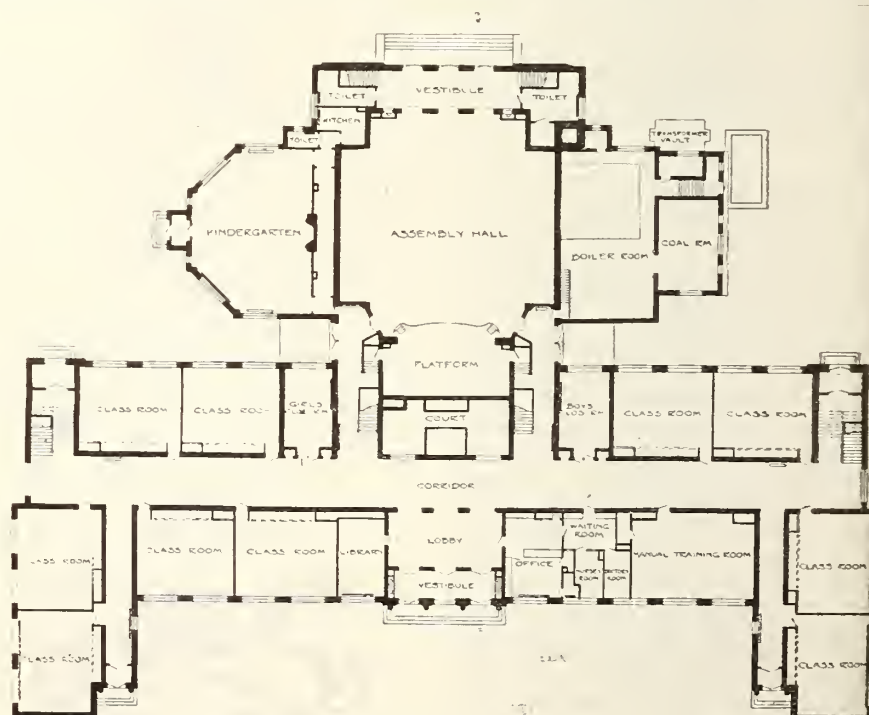


Fig. 1—First-floor plan

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No. 14

Caused a Big Stir

IT IS interesting to note the signs of progress being made in certain heating circles and particularly to note that in some centres warm air heating installations for larger buildings are becoming more popular. In fact the new building code in one city now calls for 6 inch studs in new buildings. This is another evidence that warm air furnace systems are to have a better chance to show what they can do in large homes. The use of fans in connection with such installations is becoming more general. This building code is as follows: "The following provision shall be made in any building wherein the warm-air heating system is to be installed for the reception of the same. Joists shall be placed 16 in. on center and shall be butted, not lapped. New stud partitions wherein stacks are to be run shall be made at least 2 x 6 in. studding placed to give a clear space for the stack of not less than 14 in. It shall be unlawful to run any heating stacks in any new partitions constructed thinner than 5% in. in width of studs."

This new regulation will mean better warm air furnace installations and give this type of heating a better chance to show what it can do in large homes.

Impressing the Public

NOW that there has been a change in government in Ontario, it is to be hoped that the new government will see the necessity of taking steps to bring into force the new set of proposed plumbing regulations on which a number of Ontario sanitary engineers spent much time and thought. These proposed regulations took definite form under the Hearst Government in Ontario, and authorities agree that a more up-to-date set of regulations is hard to find anywhere on the continent. There has been some talk of politics having held the matter in abeyance during the regime of the Drury Government in Ontario, it being felt by some that the proposals were regarded as radical by certain sections of the rural districts, but the fact remains that after having passed certain stages of committee the proposals were allowed to drop and were pigeon-holed by the Minister of Labor in the late government throughout his entire tenure of office despite the active efforts of officers of the Ontario Society D. S. & H. E., to bring it before the House. The need for such regulations is daily becoming more evident. As long as no such regulations exist every property owner or tenant will go the limit in doing his own work and the community will have to stand in the danger of this condition. Good sanitation and properly installed heating systems are two of the greatest boons to modern civilization. We have had enough experience with

what they can be when not properly handled. Sanitary engineers are experts at their line, and supporting such movements actively shows that they are on the job to help impress the public with the importance of their industry.

Not a Luxury

THE old cry that up-to-date bathing equipment in the home is a luxury is not dead yet; it continues to crop up, sometimes in the most unexpected places. This amazing contention was advanced in the course of a discussion on Housing, in Committee of the British House of Commons recently. Those who contend that bathing is a luxury belong to the peculiar school of thought which frowns upon every progressive step in civilization and resolutely condemns higher standards of life, holding improvement to be a form of impiety.

Fortunately this type of individual is becoming more and more in the nature of a unique survival from ruder and less enlightened days and although occasionally we may talk of the "good old times" with fervent reverence, we never follow up our thoughts of the past to a logical conclusion; if we did we should realize perhaps more vividly than we do, the enormous list of benefits which the average man enjoys to-day compared with those times. The bathroom as an apartment in the house has gained a position of definite importance; it cannot be ignored and swept aside labelled as a "luxury." Were this to become the common opinion the standard of comfort and convenience in the home would be much lowered.

"Reds" Cannot Run Canada

WHENEVER the head of Bolshevism raises itself in Canada it must be smitten down.

The strike of the miners and steel workers on Nova Scotia has continued in the face of all authority—in defiance of the federal and provincial governments and in defiance, too, of the constituted labor leaders of the workers themselves. Whatever the merits of the case as between the men and the company which led to the break, they have been lost sight of in the issue of whether an industry which is an important factor in the well-being and safety of the nation is to be controlled by constitutional methods or to be directed by the Reds from Moscow.

Professional agitators in the name of Trade Unionism and the workers of Canada are demanding, with much bluff and noise, the withdrawal of military and police protection for lives and property in Nova Scotia coal and steel fields with such skill that some government officials, thinking it is the voice of the country, have been apologizing for being forced to do their duty.

It might be well for these officials, who often mistake noise for public sentiment, to note the voters of Canada, including the workers themselves, are so unsympathetic with the professional labor element that not one real Trade Unionist was elected in all Canada.

If strikers behave themselves they need have no fear of Government troops or police officials. There is no room for Reds in Canada.

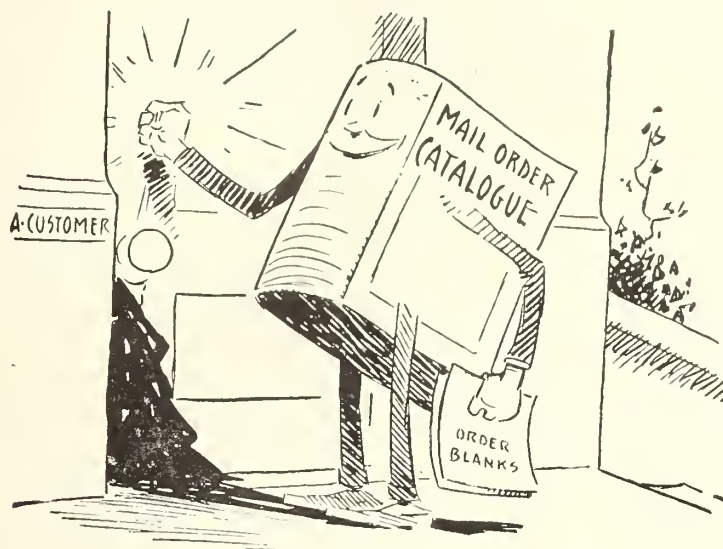
There is a wide diversity of terms among manufacturers. Some quote 5 per cent. thirty days, others 3 per cent., some sixty days net, etc. The merchant cannot be expected to guess as to what are the correct terms, and it is up to the manufacturer and jobber to see to it that the exact terms are on every invoice rather than the words "terms as usual."

MINUTE MESSAGE

NUMBER TWENTY-TWO

Written for "Sanitary Engineer" by FRANK STOCKDALE

Co-operation Series



The New Peddler

Organization Made Him—Co-operation Will Defeat Him

*T*HERE'S only one way to get ahead of this fellow and that's to do what he does—only better.

You can take his place just as he took the place of the old time peddler.

He uses organization, so can you; he wins and holds the confidence of his customers, so can you; he offers assortments that please and guarantees satisfaction without argument, so can you in connection with plumbing fittings, specialties, etc.

He talks a great deal about price; but when delays, damages in shipment, disappointment in quality and more delays, are considered the difference in price is not equal to the service and satisfaction you can give—if you will.

Join hands with your local merchants, offer wider assortments through co-operative advertising; build confidence by guaranteeing satisfaction; take a genuine personal interest in the desires of your customers and you need not fear this "Peddler."

Co-operation will defeat him.

THINK IT OVER --APPLY IT TO YOUR BUSINESS

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in the Plumbing Trade in Canada.*

News Notes From Coast to Coast

NEW FIRMS

St. John.—Crawford and Hooper have opened a plumbing and heating contracting business in St. John, N. B. A store and office, combined, has been opened on Union Street in St. John.

WINDSOR PLUMBING INSPECTOR QUILTS

Windsor, Ont.—Plumbing Inspector A. Ross has resigned and will go into business for himself. Mr. Ross was appointed to the position on his return from overseas four years ago.

TO INSTAL HEATING PLANT

Chatham, N. B.—A central heating plant is to be installed by the Sisters of Hotel Dieu for the heating of all their buildings. A new building will house the boilers, thus decreasing fire risk.

NEW MONTREAL COMPANY FORMED

Montreal, Que.—Announcement is made of the formation of the firm of Stanley Brock, Limited, with headquarters in this city. Mr. Brock, and T. C. Cunningham who is associated with him, will act as Quebec and Maritime agents for the Standard Sanitary Manufacturing Co., Toronto; Galt Brass Co., Galt; and Fred Somerville & Co., Toronto.

BUSINESS UNDER NEW NAME

The business formerly known as Moulson-Buchanan, Limited, plumbers' supplies, 40 King Street East, Toronto, is now being carried on under the name of J. L. Buchanan, Limited, at the same address. J. L. Buchanan is president of the new company and W. J. Stephens is secretary-treasurer. They will continue to specialize in English vitrolite and vitreous china, manufactured by John Slater, Limited and Geo. Howson and Sons, of Hanley, Staffordshire. Mr. Buchanan has just returned from England where he has been assured of adequate supplies and prompt shipments for the coming season.

HAS PLUMBING CONTRACT

St. John, N. B.—W. B. McDonough has received the contract for installing the plumbing and heating systems in the additions to the Germain Street Baptist Church of St. John. Construction of the additions has been started.

Schools have also been one of the leading source of revenue for local plumbing and heating contractors. In St. John, the following school plumbing and heating contracts have been filled or in process of filling: Albert School, St. Peter's School, Holy Trinity School, St. John the Baptist School. These contracts have been issued this year.

Doings in the Plumbing and Heating Industry

PLUMBING FIRM IS INCORPORATED

Moncton, N. B.—Incorporation of T. H. Cochrane and Co., Ltd., of Sackville, is announced. The company is authorized to take over the general business as plumbers formerly conducted by T. H. Cochrane. The members of the new firm are T. H. Cochrane of Sackville and George V. Steeves and John H. Cochrane of Moncton.

SARNIA PLUMBERS HELD PICNIC

Sarnia, Ont.—The plumbers of the town held a highly successful outing when they motored several miles up the shore for their annual picnic, putting on a fine programme of sporting events and topping off the day with a banquet under the trees. In a spirited baseball match between the plumbers and the electricians, the former were declared the victors. Wm. Barrie carried off the quoiting championship, defeating Alex. Joss in the finals.

OUTSIDE CLOSETS NOT TO BE ALLOWED

Peterboro, Ont.—The city's campaign to get rid of all outdoor closets is being carried on actively this summer. At a



J. E. NEWSOME

Eldest son of Edwin Newsome, contributing editor of Sanitary Engineer, who, as announced in July 1 issue of Sanitary Engineer, has been appointed to the sales department of Williams Tool Corporation of Brantford, Ont.

recent meeting of the Board of Health, owners of thirteen houses were notified that they must comply with the Board's programme of improved sanitation.

HANOVER WILL INSTAL CHLORINATOR

Hanover, Ont.—A chlorinator, to be used in purifying the water supply of the town, has been purchased and will be installed immediately.

SCARBORO RATEPAYERS WANT SEWAGE SYSTEM

Toronto, Ont.—Plans for a sewage disposal system for Scarboro township were discussed at a meeting of the Victoria Park Ratepayers' Association. It was decided to ask the members of the Township Council to attend the next meeting of the association to discuss the matter.

EDMONTON GETS GAS SERVICES

Edmonton, Alta.—Installation of gas services in homes throughout this city have been started, according to announcement made by R. G. Hill, general manager of the company, following the arrival of pipe and other equipment from Ontario and Ohio. Application for services continue to come in at a good rate. The towns of Viking and Tofield are also making arrangements to secure the natural gas service from the local company.

CONSTRUCTION WORK AT OWEN SOUND

Owen Sound, Ont.—Contracts to the extent of \$115,000 have been let to four different firms for the sewer, curbing and paving work to be done here this summer. J. E. Russel Co., Ltd., Toronto, will supply the sewer pipe at \$10,000; F. F. Fry Ltd., the sewer construction work at \$40,000; W. L. Nelson, Stratford, the curbing for \$12,000 and the Warren Paving Co. have contracted to carry out the paving programme for \$53,000.

CONTRACTORS RENEW CRACKED PIPE

St. John, N. B.—The Canada Lock Joint Co., contractors for the new 36 inch reinforced concrete water main from Spruce Lake to Manchester's Corner, are renewing about 1,200 feet of the pipe which was shocked and cracked by the sudden turning in of the water when the pipe was first tested out. This will be in addition to about 900 feet renewed last week. The work is being done at the expense of the company under their maintenance bond.

PROVINCIAL BOARD TO INVESTIGATE

Woodstock, Ont.—Frequent complaints made by west end citizens of the offensive odors which are arising from the city's sewage disposal plant, installed some time ago on the orders of the Provincial Board of Health, have resulted in an investigation which is to be made shortly by Inspector De LaPorte of the Provincial Board.

MADE ANNUAL INSPECTION TRIP

Winnipeg, Man.—Members of the City Council and of the suburban municipal councils have completed their annual inspection trip over the Greater Winnipeg water district railway. They inspected the intake plant at Shoal Lake and the prison farm during the course of the trip.

KITCHENER HOSPITAL CONTRACT AWARDED

Kitchener, Ont.—The contract for the general construction of the new St. Mary's Hospital has been awarded to W. M. Sutherland Co., Ltd., Toronto, the price being \$258,000. Tenders for heating, plumbing and wiring will be opened later.

INCINERATOR CLAIMED NECESSARY IN HAMILTON

Hamilton, Ont.—Frequent complaints regarding the condition of the west-end dump make an improvement of the city's garbage disposal system practically a necessity, City Engineer W. L. McFaul reporting that the only solution of the problem lay in the installation of an incinerating system.

LAST LINK OF WATER MAINS IS COMMENCED

Vancouver, B. C.—"Pulling" of the two big water mains across False creek in order to complete the last link in the Point Grey partnership watermain has been completed, said E. M. LeFluffy, waterworks engineer.

This main will supply the city and Point Grey with more than 4,000,000 extra gallons of water and will be Greater Vancouver's safeguard against a water shortage this summer.

FILTRATION PLANT KEEPS WATER CLEAN

Lethbridge, Alta.—While the people of Calgary and Edmonton, as a consequence of the floods, were drinking and washing in water thickened with mud, the people of Lethbridge, with just a suspicion of mud in the water a day or so ago, were revelling in aqua pura of crystalline appearance. To this they owe thanks to the filtration plant built in 1917 at a cost of \$100,000. The filtration plant has had the opportunity of being tested with the recent flooding of the river, and, taxed to the limit, has come out with colors flying after the trial.

MAY INSTALL WATERWORKS SYSTEM

Durham, Ont.—The Town Council is securing advice on the installation of a waterworks system for the municipality. There are three sources of supply, the river, Wilder's Lake and springs in the hill north of the town. The latter are likely to be utilized at a probable cost of \$36,000.

NEEDS ANOTHER MILE OF SEWERS

Fort William, Ont.—The construction of at least another mile of sewers is necessary in the coal dock area of the city before sanitary conditions are anywhere near ideal, according to a report submitted to Fort William city officials by F. A. Dallyn of the Sanitary Engineering Commission which held a sitting here some time ago.

F. C. PALMER GOES TO BOWMANVILLE

Oshawa, Ont.—F. C. Palmer, who was for many years engaged in municipal work in Oshawa and until a few months ago as Sanitary Inspector, has received official notification of his appointment as Town Engineer and Street Commissioner for the town of Bowmanville. The appointment was made at a special meeting of the Bowmanville Town Council, after many applications had been considered.

Mr. Palmer is a member of the Royal Sanitary Institution, London, Eng., where he graduated in sanitary engineering. He has an overseas record of three and a half years, and prior to enlisting was acting as Sanitary Inspector and Assistant Town Engineer in Oshawa.



F. C. PALMER

Formerly sanitary engineer of Oshawa who becomes Town Engineer of Bowmanville, Ont.

TO INSTAL DRINKING FOUNTAINS

Victoria, B. C.—The city engineer has been asked to prepare a report on the cost of installing drinking fountains in Beacon Hill Park, following action in this respect taken recently by the City Council.

REDCLIFFE IS WITHOUT WATER

Medicine Hat, Alta.—The town of Redcliffe is without a water supply as the result of the power plant there being struck by lightning and totally destroyed during a recent storm.

NEW WATER SYSTEM AT PORT CREDIT

Port Credit, Ont.—The new water system for the town has reached completion, tests having proven the installation to be satisfactory and in shape for use. The installation was made at an approximate cost of \$110,000.

MUST IMPROVE SCHOOL SANITATION

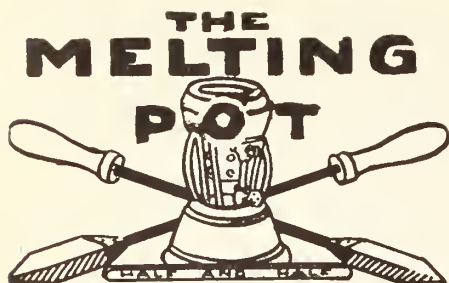
Hamilton, Ont.—One of the problems facing the Board of Education of this city is the improvement of the sanitary conditions at Murray Street School. Most of the board favor the erecting of a new school in that part of the city but this step is dependent upon the securing of land from the C. N. R. and the immediate improvement of sanitary conditions at the school is urged by the Board of Health.

WESTON CONTRACTS AWARDED

Weston, Ont.—The Weston Water, Power and Light Commission has awarded contracts totalling approximately \$27,000 for material and work in connection with the installation of an extension of the town's water system. The contract for trenching, laying of water pipes, filling in and jointing went to J. Cavotti, of Toronto, at \$5,597.

UNSUCCESSFUL BIDDER LIKELY TO APPEAL

Levis, Que.—It is likely that T. E. Rousseau, Quebec contractor, will appeal to the courts against the decision of the Levis City Council to award the contract for a new filter to the Smith Co., of Montreal. This company's tender amounted to \$154,306 or \$132,000 if the city was willing to construct the foundations of the plant, while the Rousseau company had tendered for the work at a total cost of \$140,010, about \$14,000 under the Montreal tender. Rousseau was eliminated on the grounds that he had never before constructed a filter. It is pointed out that while it is true that the firm, which is a comparatively new one, has never constructed a filter, the two engineers of the company, Messrs. Arsenault and Plamondon, constructed a filtration plant at Pointe



THAT'S SO!

"Your advertisement describes this as all wool. It is nearly all cotton."

"Yes, that's the worst of the newspapers. You can hardly believe a word they say."

KNOW THEM TOO WELL

The president of a small college was visiting the little town that had been his former home, and had been asked to address an audience of his former neighbors. In order to assure them that his career had not caused him to put on airs he began his address thus: "My dear friends,—I won't call you ladies and gentlemen—I know you too well to say that."

GOT TWISTED

An Irishman being awakened suddenly in the night by a cry of fire hastily donned his trousers and leaped from a second-story window. He alighted safely on the ground, but stood looking down at his trousers, which in his excitement he had put on hindsides before.

A fireman came up to him and said: "Did the fall hurt you, Pat?"

"No," said Pat. "Divil a bit did it hurt me, but it gave me a divil av a twisht."

RESPECT

Jack—"I noticed you got up and gave that lady your seat in the street car the other day."

Herb—"Sure, since childhood I've always respected a woman with a strap in her hand."—H.M.

IN A NEW SENSE

"Bill," said a sailor looking up from his writing, "do you spell 'sense' with a 'c' or a 's'?"

"That depends," replied his friend. "Do you refer to money or brains?"

"Aw, I don't mean either of them two," was the reply. "What I want to say is, 'I aint seen him sense'."—H.M.

HOW 'BOUT THIS

A negro went into a general store in a Southern town, ordered some supplies and asked the storekeeper to trust him for it.

"How's that, Sam, you ought to have money. You just sold your cotton up in Memphis."

"Ah ain't got no money boss, de ducks got it."

"What have the ducks got to do with your money?"

"Well, when Ah gets de paper from de man in Memphis it says—Deduct fo freight, Deduct fo truck, Deduct fo warehouse an' when de ducks got done Ah ain't got nothing left."—H.M.

OUTDOING EINSTEIN

An Irishman was handling dynamite in a quarry. He let a stick drop, and the whole box went up, taking Mike with it. The quarry boss came around later and said to another Irishman:

"Where is Mike?"

"He's gone," replied Pat.

"When will he be back?" asked the boss.

"Well," replied Pat, if he comes back as fast as he went, he'll be back yesterday."—H.M.

A GOOD TIME

She: "Yes, we had a splendid time last summer. Four other Vassar girls and I took a tramp through the Adirondacks."

He: "Did the tramp have a good time?"—H.M.

THE OTHER FELLOW NEVER HAS

Engineer—"Well, Dan, we decided at the meeting last night to strike. Why wasn't you there?"

Fireman—"I couldn't get there on account of the trolley strike. Them trolley men ain't got no consideration for the public."

INFANT TERRIBLE

Caller (to hostess's little boy)—Why are you looking so intently at the cat?

Boy—Mother said your new hat was enough to make a cat laugh and I'm waiting for it to start.—H.M.

KNOWS THEIR HAUNTS

One day while a farmer and his men were digging potatoes, a tramp came along and stopped to watch the workers. The boss, being short of help, asked the vagrant if he wanted a job.

The man of leisure replied, "Sure! What do I have to do?"

"Dig potatoes."

The tramp started to walk away, and with a look of disgust replied, "Let the man who planted them dig them. He knows where he put them."—H.M.

MATTER OF FORM

Tourist (in village Notion Store)—"What-d-dya got in the shape of motor car tires?"

Saleslady—"Funeral wreaths, life preservers, invalid cushions and doughnuts."

Does Something Else Besides Good Plumbing and Heating Work



A. M. Roberts, popular sanitary and heating engineer of Otterville, Ont., tells in this story of an opportunity which he has made best use of. Apart from business he is a splendid angler, as is here shown. It takes both him and his wife to hold up this miniature whale. He has extended an invitation for Sanitary Engineer readers to visit him when in the district and "have their lungs tested."

No Plumbing Facilities In 389 Winnipeg Houses

Winnipeg, Man.—The annual report of the Medical Health Officer of this city for 1922 contains the important information that there are to-day only 389 houses in the entire city in which there are no plumbing facilities and in which the occupants are using outside closets. This small number in a growing city the size of Winnipeg is particularly gratifying when it is recalled that just ten years ago the total reached 1,041.

One of the objectionable features noted in the report is that with the housing shortage in the city, many houses which were originally intended for one family are now being used as tenements with a number of families each occupying but a room or two. This means that five, six or more families are frequently found in houses served by but a single water closet and without any sinks whatever.

BUILDING

Chesley, Ont.—A central heating plant is to be installed at the Bruce county buildings at an approximate cost of \$15,000. An addition is also to be made to the council chamber of the County Council at a cost of \$8,000. At the present time six boilers are necessary to heat the buildings.

Asks re Difference in Pressure

Editor, Sanitary Engineer:

What would be the difference in pressure between a 2 in. pipe running one mile, and a 6-in. or 8 in. pipe running from the same spring to the same house? Is there a table or rule for showing this?

A. E. Rawlings,
Ayers, Cliffe,
Que.

Answer:—Re difference in pressures of water is a question that could not be answered unless more information is available.

First the depth of water available at the spring, the height of water in the spring and the fall allowed for the pipe line. The question as to whether or not the pipe line would be laid in a straight line free from bends, or if there be any such bends, the radius of same.

Regarding tables, there are some such tables, all arrived at by a standard formula. These tables are very long and would be too cumbersome to publish.

AN ATTRACTIVE CATALOG

Shanks & Co., Ltd., Barrhead, Scotland manufacturers of vitreous lavatories, porcelain urinals, closet tanks, etc., specially designed for the Canadian trade, have just issued an attractive catalog containing twenty pages. These goods are sold through recognized jobbers throughout Canada. Canadian agents for Canada and W. H. Cunningham & Hill, Toronto.

Asks About Sweating Chimney

Sanitary Engineer,
Toronto.

Would you please give me information if possible in regards to a chimney that sweats?

I installed a furnace in a new house, double flue chimney with a 10 inch tile for the furnace flue. As soon as you start the fire it commences to run and will sweat on an average of two eight quart pails a day. I might say that the space between the tile and brick is filled in solid with mortar. Could you kindly give me some advice as to what to do to remedy it?

Yours truly,
D. RODNEY.

* * * *

Answer: We are almost at a loss to know how it would be possible for a chimney to sweat 16 quarts of water per day. In all the writer's experience of nearly 30 years, such a condition was never heard of. We do know, however, that pipes will very often sweat when first starting a fire and particularly a new chimney. But not to the extent of 16 quarts a day. It is quite possible for this to occur one day, and then not so much each day after until the chimney has got thoroughly dried out.

We would suggest that our inquirer examine the chimney very carefully and see if there are any cracks or crevices through which melted ice or snow or water can leak into the chimney at a valley, gutter or chimney flashing. This, we think, must be the cause of the trouble.

It is quite possible, too, that such a condition could develop where the smoke pipe from the furnace to the chimney is exceptionally long and passes through a cold damp room, such a pipe would sweat, but by no means to the extent of 16 quarts of water per day. We would like to know just what conditions are found after a more minute inspection.

DEEP WELL PUMPING INSTALLATIONS

The Duro Pump and Manufacturing Co. of Dayton, Ohio, have issued two new folders for distribution to the plumbing trade. One of these folders illustrates and describes their deep well water pumping outfit. This folder is got up in two colors and describes the different places where this installation can be used.

The other folder which is also ready for distribution describes the Duro System of soft water installations, and should be of great assistance to the dealer when selling these lines.

"I am selling adding machines," announced the new travelling salesman to the country storekeeper. "I have the best adding machine on earth. It will add any number of figures accurately."

"Reckon I don't need one," replied the storekeeper, shifting his seat on the cracker barrel.

"But, man, how else can you keep up with things?"

"Wal, I got a plenty good enough system. I cut a notch on the counter every time I make a sale."

Twenty Years Ago

Following items reproduced from trade newspaper files of MacLean Publishing Company of July, 1903:

"The Standard Ideal Sanitary Co. after a survey of the field have decided to establish works at Port Hope, Ont. Now a handsome brick structure occupies a commanding position near the mouth of the harbor. The company is incorporated with a capital of \$100,000, all the stock being held by Detroit and Cleveland capitalists. The president and manager H. T. Bush is manager of The Ideal Mfg. Co., of Detroit. S. A. Sloman is vice-president, J. R. Sprankle is secretary-treasurer and A. E. Pipher superintendent."

"The eighth annual convention of the National Ass'n. of Master Plumbers, Steam and Hot-water Fitters of Canada was held in Montreal, July 1, 2 and 3, at the Forsters' Hall, 505 Craig St.

"Complimentary tickets were presented to the delegates to witness the championship lacrosse match between Shamrocks of Montreal and Brantfords of Brantford, Ont. T. O'Connell, captain of the Shamrocks, is president of the Montreal Master Plumbers' Ass'n.

"H. Mahoney, chairman of Credential Committee, reported the following members eligible to sit as delegates: Past-president J. McKinley, Ottawa; President F. Powers, Lunenburg, N.S.; Vice-president P. C. Ogilvie, Montreal; Treasurer J. Lamarche, Ottawa; Secretary J. Pascoe-Beel, pro tem; Provincial Vice-presidents, Ontario, W. H. Meredith, Toronto; Quebec, J. Thibeault; Nova Scotia, Geo. Kinsman; New Brunswick, W. Watson, Moncton; Cape Breton, J. D. Chisholm, New Glasgow; British Columbia, H. Mahoney, Guelph, Ont.; Manitoba, R. Ross, Toronto; Ontario Provincial Ass'n., L. Le Grow, Toronto; G. Cooper, Toronto; F. Maxwell,

Toronto; F. Armstrong, C. E. Pickard, both of Toronto; H. A. Knox, Ottawa; J. G. Johnson, Ottawa. Local Associations: G. Ross, Brockville; T. O'Connell, Montreal; J. Gordon, T. Moll, J. Watson, Montreal; J. A. Wooten, Halifax; D. Shea, Fredericton, W. G. Butler, Perth, Ont.

"Among the representatives of supply houses present were the following: Alex. Brenner, The Fairbanks Co., Montreal; H. McLaren, P. J. Lockhart and J. F. L. Carson, The Gurney-Massey Co., Montreal; P. McMichael, Dominion Radiator Co., Toronto; P. E. Rouillier and John Cartind, Star Iron Co., Montreal; F. J. Travers, Canada Radiator Co., Port Hope; James Robertson and Mr. Mackenzie, The Thos. Robertson Co., Ltd., Montreal; W. P. Baxter, The F. W. Webb & Co., Montreal; W. M. Snair, Son & Morrow, Ltd., Halifax.

"At the annual banquet, Peter McMichael made a brief address and responded good naturedly to the request for a song, which he rendered in good style. Fred Armstrong, Toronto, proposed the toast of 'The Ladies.' All who know him know that full justice was done to the toast."

"A meeting took place at the Canada Radiator Co., Montreal, to form an association of the manufacturers and supply men to assist the work of the National Association of Master Plumbers."

"The threatened dispute between master plumbers and plumbers' union in Winnipeg has been settled, the rate of wages to be 50 cents per hour, second-class men 25 cents and up."

"Plumbers have so much trouble with stop cocks wearing out that Morrison Patent Stop Cock has been perfected, constructed with a spindle and holder containing a soft rubber disc and a brass washer between this and the bibb washer."



Some of the Old Brigade. Group photo taken by Sanitary Engineer of the delegates to the 8th Annual Convention of the National Association of Master Plumbers. H. Mahoney, of Guelph, still active, is second from the left in the front row. Others mentioned in the report will be seen in the group.

Keeping Business Men Informed

Many Distant Canadian and United States Centres Visited Periodically by Representatives of Specialized Business and Technical Papers.

SPECIALIZED business and technical papers in Canada are doing a great work for Canadian industry by collecting the ideas and methods of outstanding men and passing them on to their respective trade or technical industries.

During recent weeks for instance, the various publications of The MacLean Publishing Company have had men in many parts of Canada attending conventions and gathering business information, as well as in a number of United States centres where conventions of international importance have been held. The fact that so much time and money is spent on gathering and publishing information of this kind illustrates the service the men in charge of these papers are putting into them.

At the present time H. T. Hunter, vice-president of the company, is studying conditions in Europe. During May the editor of Canadian Foundryman and three other members of the staff attended the American Foundrymen's Association Convention at Cleveland, Ohio. A member of the staff of Canadian Machinery attended the convention of the American Society of Mechanical Engineers, held recently in Montreal. The same publication had several representatives in attendance at the convention of the Canadian Association of Stationary Engineers in Toronto.

The editor of Printer and Publisher was present at the convention of the Weekly Newspapers' Association in Halifax a couple of weeks ago, and in August will attend the Printing House Craftsmen's convention in Buffalo.

In June the annual convention of the Saskatchewan Retail Merchants' Association was held in Prince Albert. This was attended by the Winnipeg representative of The MacLean Publishing Company. Another representative attended the annual convention of the Ontario Branch, Retail Merchants' Association, at Brockville. Representatives of Hardware and Metal attended the convention of the Ontario Retail Hardware Association, as well as other provincial retail association meetings and also many hardware and paint club meetings in towns and cities throughout Canada. Sanitary Engineer representatives attended conventions of the Ontario and other provincial organizations of master plumbers, also many local association meetings in Toronto, Hamilton, St. John, Montreal, and other cities. Bookseller and Stationer representatives attended the annual meetings of the Canadian and American associations.

The editor of Men's Wear Review was at the recent convention in Toronto of the Association of International De-

signers, and in Cleveland of the International Association of Display Men. The editor of Druggists' Weekly attended last week the annual convention of the Ontario Retail Druggists' Association. A Canadian Grocer representative went to St. Andrews, N. B., a short time ago, to attend the annual gathering of the Canadian Wholesale Grocers' Association. The Financial Post has had staff men in leading centres of the Maritime provinces and Newfoundland within the past few weeks, as well as in Western Canada, and three of them have just

returned from a trip through the mining districts in Northern Ontario to study the mining situation more closely. One has just returned to our Montreal headquarters from a trip to Vancouver, Edmonton, Calgary and intervening points, where he saw all important bond dealers and mayors and municipal treasurers.

All this is in addition to special visits to different parts of Canada for information that will help the readers of the various publications in their own line of work.

It will thus be seen that the MacLean publications do not depend on theoretical charts and cycles prepared at his desk by an Editor who never goes out. These things are useful in conjunction with history and experience, but current facts are given first place.

New Goods of Interest to the Plumbing Trade

A BUCKET TRAP

The Dunham type No. 80 bucket trap for high pressure service which the C. A. Dunham Co. Ltd., Davenport Road, Toronto, have recently placed on the market, attracted considerable attention at the C. A. S. E. convention at Toronto. This company specializes in the manufacture of heating and power plant specialties and produces a line of steam traps to meet a wide range of uses.

The manufacturers claim that a new and distinctive feature is incorporated in this new bucket trap—namely a quick, snappy, closing action.

It is quite fully appreciated that bucket traps generally are slow or draggy in their closing action, and this condition causes more or less wire-drawing and cutting of valves and seats, with incidental maintenance expense, and loss of steam.

The Dunham bucket trap operates on the same principle as other bucket traps, but the destructive effect of steam wire drawing the seat is reduced to a minimum, by the quick closing accomplished through the shape of the Dunham bucket. The proportion and shape of the bucket is such are when it begins to rise, all water inside the bucket is shifted towards the hinge, filling the water seal and the movement of the bucket up-

wards is accelerated, which produces a quick, positive, forceful action and reduces the wear on the valve and seat.

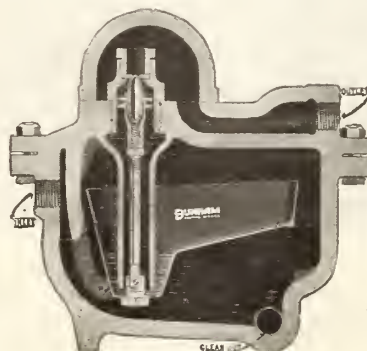
The C. A. Dunham Co. Ltd., Davenport Road, Toronto, have recently issued a new bulletin on this line, completely describing the product. Every steam plant engineer can procure a copy of it by writing the manufacturers.

NEW DURO WATER FILTER

A new water purifying filter has been placed on the market by the Duro Pump and Mfg. Co. Some of the advantages and claims made by the manufacturers are as follows:

It is a physical means of filtering and purifying any water passing through its chambers. The water passes through the inlet screen; and then through the Carbo-Ash and then through the final purifier and into the discharge line. Its capacity is 360 gallons per hour. It does not affect the operation of the pump and causes no noticeable back pressure. It cleanses and carifies and exercises a purifying effect. It removes discoloration in cistern, well, lake or spring water. It removes dirt, solids, small particles and sediment impurities. It provides clean, clear sparkling water for every purpose. It works without attention—no moving parts or mechanism.

The filter is generally connected to the discharge line preferably between the pressure tank and house fixtures. Unions are provided for easy connection. The Carbo-Ash lasts indefinitely. It may be cleared once annually by removing and washing and then replacing.



Buy, build, work, and create a job for every man, prosperity for all.—Rotary Club Poster.

Market Conditions and Tendencies

Price Trend on Sanitary and Heating Supplies

Markets at a Glance

SEASONABLE quantities of plumbing and heating goods have been sold during the past two weeks. Heating contracts at the present time seem to be more prevalent than other work also coming under the heading of plumbing, heating, and sanitary engineering.

Galvanized sheets have been selling in good volume of late, possibly as a result of a few dealers having shaded prices in this line to a small degree. Soil pipe and fittings also have been selling very well; many rural syphon sewage systems now being

installed are the means of stimulating those sales to a great extent.

A scarcity in I.C.L. 20 x 28 tinplates exists in some parts of Ontario.

Trimo and some lines of Stillson wrenches have undergone advances in price, as also have Dominion wipers. In Montreal a slight decline has occurred in solder.

Collections are only fair. Many dealers expect an improvement in this respect early in the fall, at which time business is also expected to have shown a noticeable improvement.

Montreal Markets

MONTREAL, July 28.—Trading in enamelled ware and closet goods is reported as light with prices showing no change from that of the last issue. Eavestrough and conductor pipe remain firm with dealers reporting quite active sales. Corrugated sheets show no change in price and dealers generally anticipate a revival of trade in this line now that the farmer is in between seasons and will turn his attention to his buildings.

In the ingot metal market an improved tone is noted this week, and while the advances are not rapid they indicate an improved sentiment which might carry prices higher.

Collections are reported as fair and business generally is represented as being quite seasonal.

TRADING IN ENAMELLED WARE STILL REPORTED LIGHT

Montreal.

Trading in enamelled ware is still reported light by dealers locally. No changes in price are noticed with local quotations as follows:—

Sinks, flat rim—	1 only	2 only	3 only
16 x 24	\$ 7 50	\$ 7 40	\$ 7 30
18 x 30	8 70	8 60	8 50
20 x 30	9 90	9 80	9 70
Bath tubs, roll rim, 4, 4½, 5 feet, 24 to 30 in. wide			51 40
Bath tubs, 5½ feet,			57 10
Lavatories—			
17x19 in. Apron F139 or P4045.....			15 30
18x24 in. Apron F154 or P3845 or P3847			23 60
18x21 in. Apron F169 or P4205.....			17 60
17x19 in. Roll rim. F241 or P4345.....			12 60
Less 30 per cent.			

SOIL PIPE AND FITTINGS REMAIN FIRM

Montreal.

No change is noticed in discounts on soil pipe and fittings. Dealers report sales quite seasonal in these lines. Local discounts as follows:—

SOIL PIPE—	
2 and 3 inch.....	20%
4 inch	25%
5 and 6 inch	20%
8 inch	net
FITTINGS—	
2 to 6 inch	37½%
8 inch	net

LEAD AND ZINC GOODS MOVING WELL

Montreal.

Good sales are reported in solder and lead. Prices now in effect quoted locally as follows:—

LEAD AND ZINC PRODUCTS—

Lead pipe, per 100 lbs., up to 2 in.	14 50
Do., 2 in. to 8 in.	15 50
Do., 8 in. and over	16 50
Lead waste, per 100 lbs.	15 50
Lead wool, lb.	0 13
Lead sheets, 2½ lbs., sq. ft. lb.	0 10½
Lead sheets, 3 to 3½ lbs., sq. ft. lb.	0 10
Do., 4 to 8 lbs., sq. ft. lb.	0 09½
Cut sheets, ¾ lb. extra and cut sheets to size 1 c. lb. extra	
Solder, wiping, lb.	0 24½
Solder, commercial, lb.	0 25
Solder, strictly, lb.	0 27
Solder, guaranteed lb.	0 29
Solder wire, lb.	0 39
Solder, commercial, lb.	0 25
Solder, strictly, lb.	0 27
Solder guaranteed, lb.	0 29
Solder wire, lb.	0 39
Zinc sheets, casks	0 11
Do., broken lots	0 12

NO CHANGE IN PRICE ON CORRUGATED SHEETS

Montreal.

Dealers in corrugated sheets report seasonal sales and are looking for an increased demand due to the fact that the average farmer is now between sea-

sons and will turn his attention to the roofing of buildings.

CORRUGATED SHEETS—	Per 100 sq. ft.
No. 28 gauge	7 00
No. 26 gauge	7 50
No. 24 gauge	10 00
No. 22 gauge	12 50
No. 20 gauge	14 00
No. 18 gauge	19 00

Less 10 per cent.

Lighter than 24 gauge and wider than 27 ins., 75 cents per square extra.

COPPER AND BRASS PRODUCTS ARE FIRM

Montreal.

No change in price is noticed in copper and brass products. The market is steady with quotations as follows:—

BRASS—

Sheets, base	0 27
Rods, ½ to 2 inches, round.....	0 24
Tubing, seamless, base	0 32

COPPER—

Rods, ½ to 2 inch.....	0 30
Soft sheets, plain, 16 oz. and heavier, lb.	0 33
Plain tinned, 16 oz. and heavier, lb.	0 40
Polished, and tinned, 16 oz. and heavier, lb.	0 44
Tubing, lb.	0 34
Above prices are for full sheets or bars. Cuts 5c. per lb. higher.	

EAVESTROUGH AND CONDUCTOR PIPE IN STEADY MARKET

Montreal.

Dealers in eavestrough and conductor pipe report seasonal sales. Prices remain unchanged at levels established some time ago.

EAVESTROUGH—

O. G. round and half round, per 100 ft. 3 in., \$16.90; 10 in., \$18.70; 12 in., \$22.20; 15 in., \$35.50; 18 in., \$45.00.

O. G. Square bead, per 100 ft.; 8 in., \$15.90; 10 in., \$17.70; 12 in., \$21.20; 15 in., \$34.50; 18 in., \$44.00.

Discount 65 and 5 per cent.

CONDUCTOR PIPE—Round, Plain and Corrugated, per 100 ft.; 2 in., \$18.40; 3 in., \$22.30; 4 in., \$29.60; 6 in., \$48.00; 8 in., \$58.80.

CONDUCTOR ELBOWS—

Plain or corrugated, price per doz. 2 in., \$5.25; 3 in., \$6.00; 4 in., \$10.50; 5 in., \$24.00; 6 in.,

NO CHANGE IN PRICES ON CLOSET GOODS

Montreal.

Since the minor price adjustments in the last issue there have been no changes in price on closet goods in the local market. Trading still remains somewhat quiet with local quotations as follows:

CLOSET COMBINATIONS—

Low Down Outfits, each	
Closet, standard outfit, oak.....	24 00
Do., post hinge seat	24 50
Do., oak vitro or Pussyfoot	24 00
Do., post hinge seat	25 50
Do., mahogany vitro or Pussyfoot, post hinge seat and cover	28 00
Do., vitreous china, oak post hinge seat and cover	29 00
Do., vitreous china, mahogany post hinge seat and cover	30 00
Do., white vitro or Pussyfoot, mahogany post hinge seat and cover	30 00
Do., enamelled iron tank, oak post hinge seat and cover	29 50
Do., enamelled iron tank, mahogany post hinge seat and cover	29 50
Add for 3/4" valve on supply pipe	1 25
Add for spud	0 60
Add for reverse trap bowl	1 50
Add for syphon jet bowl	7 00
Deduct for supply pipe	0 80
Deduct for floor hinge	0 60
Richelieu bowl	8 00
Washdown bowl with spud	9 50
Reverse trap bowl with spud	9 50
Syphon jet bowl with spud	15 00

CLOSET SEATS—

Oak post hinge seat and cover	3 85
Oak wood strip seat and cover	3 50
Mahogany finish post hinge seat and cover	4 05

CLOSET TANKS—

Low down, oak vitro or Pussyfoot with fittings less seat	12 00
White vitro or Pussyfoot with fittings, flush elbow and supply	16 50
Vitreous china tank with fittings, flush elbow and supply	16 00
Enamelled iron with fittings, flush elbow and supply	16 00

SEASONABLE BUSINESS REPORTED IN METAL LATH

Montreal.

Dealers in metal lath report good seasonable business. Prices remain unchanged and are quoted locally as follows:—

METAL LATH—	per sq. yd.
Painted—	
26 gauge	23c.
24 gauge	28c.
32 gauge	32c.
Galvanized, 5c. per sq. yd. extra.	

QUIET TONE PREVAILING IN RADIATORS AND BOILERS

Montreal.

In the radiator goods market a quiet tone prevails this week but dealers generally are looking for a revival of trade very shortly. Prices now in effect are the same as have ruled for some time past.

RADIATORS AND BOILERS—

Radiator list prices are for 1, 2, 3, 4 and 5 column radiators, per sq. ft.
 45 in. to 38 in., \$1.32 in., \$1.10; 30 in., \$1.15; 26 in., \$1.20; 23 in., \$1.26; 22 in., \$1.30; 20 in., \$1.36; 18 in., \$1.40; 16 in., \$1.50; 14 in., \$1.55; 13 in., \$1.60. Discount 44 per cent for hot water, and 45 per cent. for steam.
 Wall radiators—5 ft., \$1.15; 6 ft., \$1.10; 7 ft., \$1.05; 9 ft., \$1.05; 12 ft., \$1.05; Discount 41 per cent.

Boilers—Round t water boilers, sizes from 0 to 10, 52 per cent. off list. Square or sectional hot water or steam boilers, 15 in., 3 per cent. with Ontario Government trimmings, list/Square or sectional water boilers, 19 in. to 36 in., 8 per cent. Square or sectional steam boilers, 19 in. to 26 in., 6 per cent. Ontario Government trimmings, list plus 7 per cent. Square or sectional water or steam boilers, 48 in., list plus 10 per cent. With Ontario Government trimmings, list plus 13 per cent.

Round steam boilers, standard trimmings, 16 per cent. Ontario Government trimmings, 13 per cent.

F.o.b. Montreal, Toronto, Guelph.

STEADY SALE CONTINUES IN PIPE FITTINGS

Montreal.

Dealers in pipe fittings report steady sales in this line. Prices show no change, remaining at levels established some time ago.

PIPE FITTINGS—

Cast iron fittings	10%
Plugs, cast iron	10%
Do., solid	10%
Do., countersunk	10+
Bushings, cast	15%
Do., malleable	15+
Unions	30%
Flanged unions	10%
Flanged fittings	27 1/2%
Dart unions, black, 1/4 to 2 in.	331-3%
Do., 1/4 in., 2 1/2 in., and larger	23%
Do., galv. add to black	30%
Nipples, 1/4 to 4", close and short	50%
Do., long	55%
Do., 4 1/2 to 8", close and short	40%
Do., long	45%
Couplings, 4" and under	25%
Do., 4 1/2" and larger	5%

Malleable Fittings—

Piece list effective June 1st, 1922. Discount 63 per cent.

IRON AND STEEL MARKET SHOWS NO CHANGE

Montreal.

No change is reported in iron and steel with the market taking on a somewhat quiet tone. Local quotations as follows:—

IRON AND STEEL—

Common bar iron, 100 lbs.	3 95
Refined iron	5 45
Irish finish machinery steel	4 00
Mild steel	3 95
Single reeled machinery steel	5 50
Band steel	3 95
Sleighshoe steel	3 95
Tire steel	4 15
Harrow tooth steel	3 80
Toe caulk steel	4 85
Mining tool steel, per lb.	0 19
Black Diamond tool and cast steel, per lb.	0 19

NOTE.—Refined iron is approximately \$1.50 per cwt. over base, but fluctuates owing to unsettled market.

Band steel in scroll bundles, 50c per 100 lbs.

Iron and steel 3-16 in. and thinner, 50c per 100 lbs. extra.

NO CHANGE NOTED IN PRICE OF WROUGHT IRON PIPE

Montreal.

No change is noticed in the price of lapweld and butt weld pipes. Prices still based on list No. 59 issued some time ago.

WROUGHT PIPE

Price List No. 59. April 24th, 1923.
 Standard Butt weld Pipe S/C per 100 feet.

Size	Blk.	Steel	Gen.	Wrot.	Iron
			Galv.	Blk.	Galv.
1 1/4 in.	6.00	8.00	.....	.....	.....
1 1/2 in.	4.32	6.30	7.56	9.60	.....
1 3/4 in.	4.32	6.30	7.56	9.60	.....
2 in.	5.53	6.97	7.82	9.35	.....
2 1/4 in.	6.79	8.40	9.55	11.27	.....
2 1/2 in.	9.69	12.07	13.77	16.32	.....
2 3/4 in.	13.11	16.33	18.63	22.08	.....
3 in.	15.68	19.53	22.28	26.40	.....
3 1/2 in.	21.09	26.27	29.97	35.52	.....
4 in.	33.35	41.54	.....	.....	.....
4 1/2 in.	43.61	54.32	.....	.....	.....
5 in.	56.12	69.00	.....	.....	.....
5 1/2 in.	65.49	81.75	.....	.....	.....

Standard Lapweld Pipe S/C per 100 ft.

Size	Blk.	Steel	Gen.	Wrot.	Iron
			Galv.	Blk.	Galv.
2 in.	24.42	29.60	33.30	38.85	.....
2 1/2 in.	36.27	44.46	50.31	59.09	.....
3 in.	47.43	58.14	65.79	77.27	.....
3 1/2 in.	57.04	69.92	79.12	92.92	.....
4 in.	67.58	82.84	93.74	110.09	.....
4 1/2 in.	78.74	96.52	1.14	1.33	.....
5 in.	91.76	112.48	1.33	1.55	.....
6 in.	1.19	1.46	1.73	2.02	.....
7 in.	1.55	1.90	2.21	2.62	.....
8 in.	1.63	2.00	2.33	2.75	.....
9 in.	1.87	2.30	2.68	3.17	.....
10 in.	2.23	2.83	.....	.....	.....
10 1/2 in.	2.14	2.62	3.04	3.58	.....
12 in.	2.76	3.38	3.91	4.61	.....

NO CHANGE IN PRICE OF SHEETS AND PLATES

Montreal.

No change in price is noticed on sheets and plates. Prices have shown no tendency to deviate from the following quotations for some time:—

BLACK SHEETS—

10 gauge, base	4 75	5 00
12 gauge	4 85	5 00
14 gauge	4 95	5 10
16 gauge	5 05	5 15
18-20 gauge	5 20	5 25
22-24 gauge	5 20	5 35
26 gauge	5 25	5 40
28 gauge	5 35	5 60

GALVANIZED SHEETS—

	Queen's Head	Fleur de Lis
18-20 gauge	6 90	7 40
22 gauge	7 15	7 65
24 gauge	7 25	7 75
26 gauge	7 50	8 00
28 gauge	7 75	8 25

Other Brands—

10 1/2 oz.	7 75	8 00
28 U. S. gauge	7 00	7 75
28 U. S. gauge	7 50	7 75
24-22 gauge	6 85	7 10
20-18 gauge	6 65	6 75
16 gauge	6 50	6 60

Above prices are for 1/2 ton lots in English iron and 1000 lb. lots in American iron with an extra charge of 25c for less quantities. Extra for sheets 3 ft. wide, 28 gauge and 10 1/2 oz. 25c per 100 lbs.

Further extra for sheets 4 ft. wide according to gauge.

TIN PLATE—

20 x 28 x 100 lbs. basis	15 50
20 x 28 IC, 112s	16 00
20 x 28 IX, 112s	18 00
20 x 28 IXX, 56s	11 00
20 x 28 IXXX, 56s	12 00

TERNE PLATE—

20 x 28 IC, 112s, 200 lbs.	14 50
20 x 28 IC, 112s, 214 lbs.	15 00

CANADA PLATE—

Half bright, 60s	5 60
Half bright, 52s	5 50
Blued 52s	5 90
Blued 60s	6 00

NO CHANGE IN PRICE ON COMPRESSION GOODS

Montreal.

No change is reported in the price of compression goods locally. Discounts in effect are shown as follows:—

VALVES AND BIBBS—

Compression work, standard	45%
Fuller work, standard	30%
Quick opening, compression bibbs	43%
Bath cocks, quick opening	38%
Bath cocks, compression	40%
Basin cocks, quick opening	46%
Flatway stop and waste cocks, standard	54%
Roundway stop and waste cocks, std.	42%
Brass steam cocks, standard, 1/4 in.	25%
Radiator valves, standard	55/25%
Do., removable discs	55/25%
Globe, angle and check valves, std.	25%
Gate or straightway	25%
Emco globe valves	33%
Emco check valves	33%
Jenkins globe, angle, check and swing check	plus 15%
Jenkins gate or straightway	plus 11%
Jenkins iron body, globe and angle	plus 10%
Jenkins iron body, gate	12%
N. P. "O" and "S" traps	34%

PRICE ON RANGE BOILERS REMAINS UNCHANGED

Montreal.

No change is reported in the price on range boilers. Local prices with discounts are as follows:—

RANGE BOILERS—

5 Gallon	\$13 50
12 "	14 00
18 "	15 00
25 "	16 50
30 "	17 50
35 "	20 50
40 "	22 75
42 "	38 00
66 "	60 75
82 "	74 00
100 "	103 00
120 "	117 00
144 "	164 00
168 "	187 00
192 "	210 00

IMPROVED TONE NOTED IN INGOT METAL MARKETS

Montreal.

The metal markets have taken on an improved tone this week and while the advances are not rapid they indicate an improved sentiment which might carry prices higher if conditions develop satisfactorily in Europe.

TIN.—This metal was quite strong in London the early part of the week and while it has since re-acted slightly it is more cheerful. Should the July statistics be favorable a moderate advance might ensue. The local market is firm at 46 cents per pound.

COPPER.—Both London and New York are firm without any appreciable advance in price. The situation remains steady and prices are more likely to advance than to recede. Local market is

steady at 20 cents for electro and 19½ cents for castings.

LEAD.—The American market has firmed up again and an advance of 25 cents by the Trust shows the present trend. The European situation is firm and evidently there is no surplus in that quarter at present. The local market is firm at 8 cents per pound.

SPELTER.—London has been advancing steadily and the American market is also firm in tone. With ore at present prices there is little or no profit at present prices to producers and a seasonal advance would seem to be justified. The local market is strong at 9¼ cents to 9½ cents per pound.

ANTIMONY.—Offerings from China are on a higher basis and some business has been done for import. Local market remains steady with prices unchanged from last week.

Toronto Markets

TORONTO, July 28—There is quite a noticeable improvement in the sales of soil pipe and fittings of late. Local foundries are working to full capacity and they report many new orders. Rural districts are installing many more sanitary outfits, as a large portion of new business being received by local foundries and makers of soil pipe, etc., is in the form of orders for sanitary syphon equipment,

Galvanized sheets are quoted in some quarters at lower prices though the majority of distributors are still holding to former levels, and claim that a reduction is not warranted at the present time.

Ingot metals show very little change this week. Copper shows up a little stronger, being quoted at \$18.00 to \$19.00 and Antimony remains at the same price as last week but a slightly weaker note is manifest.

Collections are not expected to be much better until the trade has felt the effect of some of the good business, which is expected early in the fall, and which some dealers claim has already begun to arrive.

SOIL PIPE FOUNDRIES WORKING FULL TIME

Toronto.

Business in soil pipe has been very good lately. Local foundries are working at full capacity. An increase is quite noticeable in rural sanitation requirements, as many orders for syphon equipment are being received. No changes have occurred. The tendency is that prices in this line will remain firm for some time.

SOIL PIPE AND FITTINGS—

2 inch	Less 20%
3 inch	Less 20%
4 inch	Less 25%
5 and 6 inch	Less 20%
8 inch	net

FITTINGS—

8 inch fittings	net
2 to 6 inch	Less 37½%

INGOT COPPER STIFFENS DURING THE PAST WEEK

Toronto.

Ingot copper which has been strengthening for some time, is still very firm at \$18.00 to \$19.00. Though antimony has not changed in price, market conditions with this metal are inclined to

be slightly weaker. Prices in force at present are given herewith:—

INGOT METALS—

Copper \$18.00 to \$19.00; Tin \$45.00 to \$46.00; Lead \$8.00 to \$8.25; Spelter \$9.00; Antimony, \$8 25 to \$8.50; Aluminum, \$23.00 to 25.00.

PIG IRON MARKET SLIGHTLY WEAKER

Toronto.

There is a slight contraction still in evidence in the production of pig iron. Several furnaces in the U. S. have been put out this week. Many of the mills still have some back orders to fill, but they are catching up slowly, and reduced buying is in evidence, which is tapering off orders on mill books. Steel deliveries in all sections are becoming easier.

PIG IRON—(Price per ton)—

In ordinary quantities 34 05

SCRAP MATERIALS MARKET AGAIN QUIET

Toronto.

Towards the end of the last week the scrap materials market took on a brightened aspect, the first wave of an encouraging nature to be felt for some

time in that market. This week, however, again sees the market in a dull condition, no more business being done daily than was experienced three weeks ago, which was about the quietest period experienced. No changes have been made in prices for some weeks past.

SCRAP MATERIALS—

f.o.b. Toronto

Gross Tons—

Scrap Iron	
Heavy melting steel	14 00
Scrap pipe	10 00
Steel turnings	13 50
Malleable scrap	16 00
Rails, scrap	14 00
Net tons—	
No. 1 cast	20 00
Stove plate	16 00
Car wheel (std)	16 00

Scrap Metals

Heavy copper wire	12 00
Light chopper	9 00
No. 1 composition	9 00
Red brass turnings	8 00
Light brass	4 50
Heavy yellow brass	7 00
Heavy lead	5 00
Tea lead	3 00
Scrap zinc	4 75
Aluminum sheet and clippings	14 00
Hard lead	4 25

Scrap Rubber

Boots and shoes	2 00
High rubber boots	2 00
Auto tires	0 50
Solid tires	0 25
Inner tubes, mixed	2 50
Peelings, mixed	0 75

FAIR SALES IN ENAMELED FITTINGS

Toronto.

Sales of enameled fittings have only been fair this week. Prices are given herewith without any changes:

ENAMELED FITTINGS—

Enameled Iron Baths, 3" roll rim, 4 ft., 4 ft. 6 in., 5 ft.	51 40
Do., 5½ ft.	57 10
Lavatories—	
17x19" Apron F139 or P4045	15 30
18x24" Apron F154 or P3845 or P3847	23 60
18x21" Apron F169 or P4205	17 60
18x21" Roll Rim, F197, F199 or P4655-6	15 40
17x19" Roll Rim, F241 or P4345	12 60
Sinks, Roll Rim, 16x24 in.	18 40
Do., 18 x 30 in.	23 00
Do., 20 x 30 in.	24 70
Sinks, Flat Rim—	3 only 2 only 1 only
16x24	\$7 60 \$7 70 \$7 80
18x30	8 50 8 60 8 70
20x30	9 70 9 80 9 90
List less 30 per cent.	

PIPE FITTINGS SELLING IN GOOD VOLUME

Toronto.

Good quantities of pipe fittings have been sold during the past week. No revisions have been made in either cast or malleable lines.

PIPE FITTINGS—Cast Iron—

Elbows, tees, etc., standard sizes	10%
Plugs, solid, countersunk and std.	10%
Bushings	15%
Flanged unions	17½%
Flanged fittings	20%

MALLEABLE FITTINGS—

Bushings	15%
Hex. nipples, R. & L.	25%
Steam cock wrenches	30%
Union ells and tees	40%
Boiler fittings (old style)	32½%
Do., (new style)	27½%
Lip unions, all sizes	30%
Dart unions, blk. up to 2"	27½%
Dart Unions, blk. ¼" also 2½" and over	10 and 10%
Ringhangers	30%
Wrought nipples to 4" close & short	45%
Do., 4½" and up	5%
Malleable fittings, sold from price list, less	63%
Drainage fittings, black	22½%
Do., galvanized	27½%
C. I. Stop cocks, up to 4"	25%
C. I. Stop cocks, up to 4" with brass plug	15%

CLOSET COMBINATIONS SHOW FAIR WEEK'S SALES

Toronto

Closet bowls, seats, low-down tanks, and other closet combinations, have all had fair sales. No new prices are shown on these lines.

CLOSET COMBINATIONS—	Each
Oak, Wood Tank, Oak W. S. Seat and Cover	24 00
Oak Vitro Tank, Oak W.S. Seat and Cover	24 50
Oak Pussyfoot Tank, Oak W.S. Seat and Cover	24 00
Oak Wood Tank, Oak P.H., Seat and Cover	24 50
Oak Vitro Tank, Oak P.H. Seat and Cover	21 50
White Vitro Oak Woodstrip Seat and Cover	24 50
White, Pussyfoot Oak Woodstrip, Seat and Cover	25 50
White Vitro Tank, Mahog., P.H. Seat and Cover	26 50
White Pussyfoot, Mahog., P.H. Seat and Cover	26 50
White Vitro or Pussyfoot, oak, P.H. Seat and Cover	26 00
Mahog. Pussyfoot, Mahogany P.H., Seat and Cover	27 00
Vitreous China Tank, Oak P.H., Seat and Cover	30 75
Enam. Iron Tank, Oak P.H. Seat and Cover	28 75
Vitreous China Tank, Mahog., P.H. Seat and Cover	31 00
Enam. Iron Tank, Mahog., P.H., Seat and Cover	29 00

ADDITIONS OR REDUCTIONS ON ABOVE—

If supplied less bend or offset, deduct...	0 50
If supplied with reverse trap bowl, add	1 50
If supplied with BOT Reverse Trap bowl	
Add	1 50
If supplied with plain syphon jet bowl	
Add	7 00
If supplied with N.P. stock cock on supply Pipe, Add	1 50
If supplied less brass and rubber floor flange and bolts, Deduct	0 60
If supplied less bend or offset, deduct	0 50
If supplied less N. P. supply pipe deduct	0 60

CLOSET BOWLS—

Washdown bowl	10 00
Reverse trap bowl	14 00
Syphon jet bowl	18 75
"Richelieu" bowl	10 50

CLOSET TANKS—LOW DOWN—

Oak wood, Tank and inside fittings with bend and supply	11 20
Mahog. Wood Tank, and inside Fittings with bend and supply	15 40
Oak Vitro or Pussyfoot Tank and inside Fittings with bend and supply	11 20
White Vitro or Pussyfoot Tank and inside Fittings with bend and supply	13 45
White Enam. Tank P-585 or P-9262, or White Vitreous China Belmeade Tank with fittings (as above)	19 25

CLOSET SEATS—

Oak Rich. Seat and Cover to wall	3 50
Oak Woodstrip Seat and Cover with bolts	3 50
Oak Woodstrip Seat less Cover with bolts	2 90
Oak Post Hinge Seat and Cover	3 85
Mahog. Fin. Post Hinge Seat and Cover	4 05

ASBESTOS PRODUCTS EXPERIENCE SOME BRISK TRADE

Toronto

Business in asbestos pipe covering, millboard, paper and boiler covering experienced a wave of brisk business during the past two weeks. This is a decided change from the quietude of the asbestos market which has been prevailing for some time past, and has created quite a lot of optimism among dealers in these lines.

Quantities of goods which had been lying in dealers' warehouses for some weeks past have been sold or contracted for, and it is believed by some distributors that business has taken a turn for the better that is going to be lasting.

ASBESTOS PRODUCTS—

Pipe Covering—	
Air cell, 4 ply	50 per cent. off list.
Air cell, 3 ply	55 per cent. off list.
Air cell, 2 ply	57½ per cent. off list.
Boiler Covering	\$1.50 — \$2.00 per bag.
Asbestos paper or felt	\$8.25 \$9.00
Magnesia pipe covering	less 40 per cent.
Magnesia pipe covering, small lots, less	35 per cent.

LAPWELD AND BUTTWELD PIPE PRICES STEADY

Toronto

No price changes have occurred on standard lapweld and butt weld pipe.

Price List No. 59.		April 24th, 1923.			
Standard Butt weld Pipe		S C per 100 feet.			
Size	Blk.	Steel	Gen. Galv.	Wrot. Blk.	Iron Galv.
¾ in.		6.00	8.00		
1 in.		4.32	6.30	7.56	9.60
1 ¼ in.		4.32	6.30	7.56	9.60
1 ½ in.		5.53	6.97	7.82	9.35
2 in.		6.79	8.40	9.55	11.27
2 ½ in.		9.69	12.07	13.77	16.32
3 in.		13.11	16.33	18.63	22.08
3 ½ in.		15.68	19.53	22.28	26.40
4 in.		21.09	26.27	29.97	35.52
4 ½ in.		33.35	41.54		
5 in.		43.61	54.32		
5 ½ in.		56.12	69.00		
6 in.		63.49	81.75		

Standard Lapweld Pipe		S C per 100 ft.			
Size	Blk.	Steel	Gen. Galv.	Wrot. Blk.	Iron Galv.
2 in.		24.42	29.60	33.30	38.85
2 ½ in.		36.27	44.46	50.31	59.09
3 in.		47.43	58.14	65.79	77.27
3 ½ in.		57.04	69.92	79.12	92.92
4 in.		67.58	82.84	93.74	110.09
4 ½ in.		78.74	96.52	1.14	1.33
5 in.		91.76	112.48	1.33	1.55
6 in.		1.19	1.45	1.73	2.02
7 in.		1.55	1.90	2.21	2.62
8 in.		1.63	2.00	2.33	2.75
9 in.		1.87	2.35	2.68	3.17
10 in.		2.31	2.83		
10 ½ in.		2.14	2.62	3.04	3.58
12 in.		2.76	3.38	3.91	4.31

EAVESTROUGH AND CONDUCTOR PIPE FIND READY SALES

Toronto

Good amounts of eavestrough and conductor pipe have been sold during the past week, mostly in the common lines, such as O.G. trough and round pipe. Current prices are supplied herewith:—

TROUGH (Eave)—

O. G. Square Bead—	Per 100 ft.	Per 100 ft.
8 inch	\$15 90	15 inch.....\$34 50
10 inch	17 70	18 inch.....44 00
12 inch	21 20	
O. G. Round and Half Round—		
8 inch	16 90	15 inch.....35 50
10 inch	18 70	18 inch.....45 00
12 inch	22 20	
Less 65 and 5 per cent.		

PIPE (Conductor)—

Plain, round or corrugated		Per 100 ft. in 10 ft. lengths
2 in., in 10 ft. lengths, list		18 40
3 in., in 10 ft. lengths, list		22 30
4 in., in 10 ft. lengths, list		29 60
5 in., in 10 ft. lengths, list		48 00
6 in., in 10 ft. lengths, list		58 80
Less 65 and 5 per cent.		

CONDUCTOR ELBOWS—

Plain, round or round corrugated:		
2 inch, list		\$ 5 25
3 inch, list		6 00
4 inch, list		10 50
6 inch, list		29 00
Outlets, cut offs, tubes and conductor hooks		
List less 50 and 10 per cent.		

PIPE WRENCHES ADVANCE TEN PER CENT.

Toronto

A ten per cent. advance has taken place in the price of Trimo pipe wrenches and parts for Trimo wrenches. The new price established and which is ruling now is 45 per cent. off list prices.

PRICES ON DOMINION WIPERS MOVE UPWARDS

Toronto

White Dominion wipers are now selling at 19 per pound and the colored wipers are priced at 15 cents per pound. These prices are advanced about ten per cent. over the old prices on these goods.

RADIATORS AND BOILERS ARE ENJOYING GOOD SALES

Toronto

The continuance of a good amount of building has kept up a steady and good trade in boilers and radiators.

RADIATORS AND BOILERS—

Revised radiator list prices are for 1, 2, 3, 4 and 5-column radiators per square foot.

38 in., \$1; 32 in., \$1.10; 30 in., \$1.15; 26 in., \$1.20; 23 in., \$1.26; 22 in., \$1.30; 20 in., \$1.36; 18 in., \$1.40; 16 in., \$1.50; 14 in., \$1.55; 13 in., \$1.60.

Discount on 2, 3, 4 and 5 column standard sizes, 44 per cent. for water and 45 per cent. for steam.

Discount on 1-column standard size, and 2, 3, and 4-column hospital sizes 36 per cent. for water and 37 per cent. for steam.

Discounts on 1 column hospital size water 22 per cent. Steam 23 per cent.

Wall radiators—5 ft., \$1.15; 6 ft., \$1.10; 7 ft., \$1.05; 9 ft., \$1.05; 12 ft., \$1.05. Discount 41 per cent.

BOILERS—

Water: Round 52 per cent. off list. Square 8 per cent. off list.

Steam: Round, 13 per cent. off list; Square, list plus 7 per cent.

GALVANIZED SHEETS SELLING READILY

Toronto

A slightly easier note has been felt this week with regard to galvanized sheet prices. While most distributors are maintaining the prices issued formerly, some dealers are breaking towards lower levels.

SHEETS, GALVANIZED, BLACK AND BLUE—

Premier and Apollo Brands—		
10 ¾ oz. 3 ft. wide	7 00	7 40
10 ¾ oz. narrow	6 90	7 15
28 U. S. gauge, 3 ft. wide	6 60	6 90
28 U. S. gauge, narrower	6 50	6 65
26 U. S. gauge	6 20	6 35
22 and 24 U. S. gauge	6 05	6 20
18 and 20 gauge	5 90	6 05
16 U. S. gauge	5 75	5 90
12 and 14 U. S. gauge	5 60	5 75

F.o.b. and delivered in Toronto.

An extra 20c. per 100 lbs. is charged for Keystone and Premier brands copper-bearing sheets.

TANK STEEL PLATES—

¼-in. and heavier, base	3 60
3-16 in.	3 95

BLUE ANNEALED SHEETS—

10 gauge, base	4 50	4 60
12 gauge	4 55	4 65
14 gauge	4 60	4 70
16 gauge	4 65	4 75

BLACK SHEETS—

18-20 gauge	5 35	5 45
22-24 gauge	5 40	5 50
26 gauge	5 45	5 55
28 gauge	5 60	5 70

A charge of 2¢ per 100 lbs. is made for less than case lots. An extra 10c. per 100 lbs. is also charged on sheets 2½ in. wide.

LEAD AND ZINC PRICES FIRM

Toronto

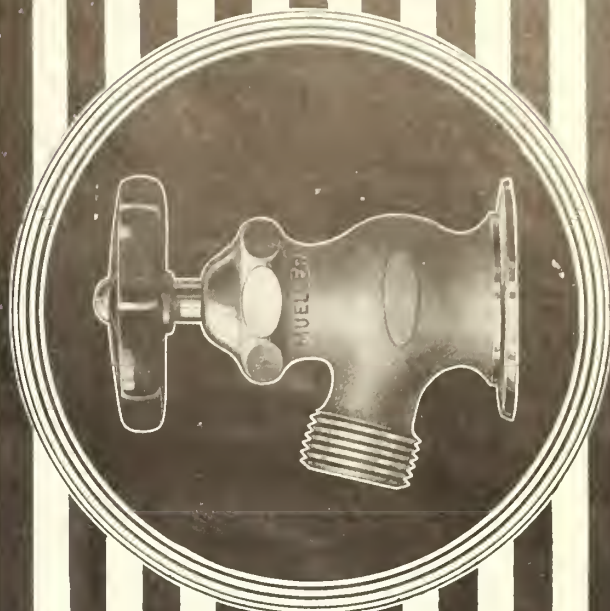
No changes have occurred in prices of lead and zinc goods. A firm note is maintained in these lines.

LEAD AND ZINC GOODS—

Lead pipe, per 100 lbs., up to 2".....	14 50
Do., 2" to 8".....	15 50
Do., 8" and over.....	16 50
Lead waste, per 100 lbs.....	15 50

Note—Lead pipe is subject to a discount of 10 per cent.

Lead trays and bands	15 50
Lead wool, lb.	0 14 4
Lead sheets, 2½ lbs. sq. ft. per lb.	0 12 4
Lead sheets, 3 to 3½ lbs. sq. ft. per lb.	0 11 4
Do., 4 to 8 lbs. sq. ft. lb.....	0 10 4
Cut sheets, ¾ c. per lb. extra	
Cut sheets, to size, 1 c. per lb. extra	
Solder, guaranteed, lb.....	0 29 0 30
Do., strictly, lb.....	0 27 0 28
Do., commercial.....	0 26 0 27
Do., wiping.....	0 27 0 28
Do., wire.....	0 36 0 38
Zinc sheets, casks, lb.....	0 11 ¾ 0 12 ¼
Do., do., less, lb.....	0 12 ¼ 0 13 ¼



MUELLER Stop Cocks, Sill Cocks and Basin Cocks

The wide range of design, the uniform quality and the tested worth of each article make it a pleasure for plumbers to sell and install **MUELLER** goods. The precision with which every thread and joint is finished insures satisfaction to the user and saves time for the plumber. See A-1240, A-1245, A-1513 and A-1517.

Write for catalog and prices. Mail orders given immediate attention.

H. MUELLER MFG. CO., LIMITED, SARNIA, ONT.

Water, Plumbing and Gas Brass Goods and Tools.

American Factory at Decatur, Illinois, U. S. A.

Branches, New York and San Francisco

Mueller Metals Co., Port Huron, Mich., Makers of "Red Tip" Brass Rod; Brass and Copper Tubing; Forgings and Casting in Brass, Bronze and Aluminum; also Screw Machined Products.



NO PRICE CHANGES IN MANY LINES

Toronto.

Range boilers this week were not affected by any price changes, nor were cotton wastes, boiler tubes, corrugated sheets, boiler stands and lavatory fittings and brass goods.

I.C.L. TINPLATES SCARCE IN SOME SIZES

Toronto.

Tinplates, I.C.L., 20 in. by 28 in., are very scarce locally. Unless there is an arrival of some of this size, the price will likely advance in the near future.

PLATES, (COKE TIN)—

20x28 100 lbs. basis, box.....	15 50
20x28 IC, 112s, box.....	16 00
20x28 IX, 112s, box.....	18 50
20x28 IXX, 56s, box.....	10 50

20x28, IXXX, 56s, box.....	11 50
20x28, IC Terne, 112s, box.....	16 00
PLATES (CHARCOAL TIN)—	
20x28, IX, 56s, box.....	8 50 9 00
20x28, IXX, 56s, box.....	9 90 10 50

Small Lots
Per C. lbs. Case
Lots

TIN PLATES—(For Boilers)—	
14x60 IXX, 56 sheets per case..	12 50 12 00
14x60 IXXX,	12 50 12 00
TINNED SHEETS FOR MILK CANS—	
16½ x 41¾ 18 ga.	9 65 9 15
21 x 41¾ 18 ga.	9 65 9 15
30 x 72, 20 ga.	14 50 14 00
30 x 45¾, 2 ga.	10 15 9 65
30 x 50, 22 ga.	10 25 9 75
30 x 54, 22 ga.	10 30 9 80
30 x 78, 22 ga.	10 35 9 85
30 x 72, 22 ga.	15 00 14 50
36 x 84, 22 ga.	15 00 14 50
42 x 84, 22 ga.	15 75 15 25
48 x 96, 22 ga.	16 50 16 00
30 x 50, 24 ga.	10 25 9 75
30 x 54, 24 ga.	10 30 9 80
30 x 58, 24 ga.	10 35 9 85
30 x 72, 24 ga.	15 0 14 50
36 x 84, 24 ga.	15 00 14 50
42 x 84, 24 ga.	15 75 15 25
30 x 72, 26 ga.	15 50 15 00

Winnipeg, Man.

WINNIPEG, July 28.—An improvement has been noticed in the demand for all lines of plumbers' and steamfitters' supplies. Prices remain as before on corrugated sheets and eavestrough and dealers report a satisfactory trade. Solder has shown a slight decline. A better tone prevails in the West and crops are coming along nicely and later in the Fall business is expected to show a decided improvement.

NO CHANGE IN PRICES ON WROUGHT IRON PIPE

Winnipeg.

Local dealers report a seasonable demand for wrought iron pipe, and no price change is recorded.

EAVE AND CONDUCTOR PIPE SELLING WELL

Winnipeg.

There is an increased demand for eave and conductor pipe, and as the season advances an improvement is expected. Local quotations remain unchanged.

FAIR VOLUME OF SALES IN SHEETS AND PLATES

Winnipeg.

There is a fair demand for galvanized black and Canada sheets as building activities increase. An improvement on this line is looked forward to.

LEAD AND ZINC GOODS MOVING WELL

Winnipeg.

Good sales are reported by dealers on lead and zinc goods and prices locally are unchanged.

BOILER TUBES QUIET

Winnipeg.

A quiet tone prevails on the market for boiler tubes. Prices show no change.

FAIR DEMAND FOR SOIL PIPE AND FITTINGS

Winnipeg.

There is a seasonable demand for cast iron soil pipe and fittings. Iron soil pipe fittings, size 2 to 6 in., are quoted at 30 per cent. and 8 inch at 15 per cent.

advance. Iron soil pipe, 2 and 3 inch, is 5 per cent.; 4 inch, 12½ per cent., while 5 and 6 inch is quoted at 5 per cent., and 8 inch at 15 per cent. advance.

IRON AND STEEL PRODUCTS ARE WITHOUT CHANGE

Winnipeg.

Bar products still remain in a firm market with prices showing no change locally.

COTTON WASTE SELLING FAIRLY WELL

Winnipeg.

Fairly good sales have been recorded locally on cotton waste and oakum.

A DECLINE IN SOLDER NOTED

Winnipeg.

Wire solder shows a slight reduction and is quoted at 41c. per lb., with tinkers at 31c. and wiping at 30c. in case lots, and 31c. in less quantities. Resin core is quoted at 70c. per lb., and acid core at 75c.

FLUE BRUSHES MOVE DOWNWARD

Winnipeg.

A slight reduction is in effect on spiral flue brushes and the following sizes are as listed below:

SPIRAL FLUE BRUSHES—

Each—Size 1½ in. 30c; 2 in. 40c; 2½ in. 50c; 3 in. 60c; 3½ in. 70c.

RANGE BOILERS SELLING IN GOOD QUANTITY

Winnipeg.

There is a good demand for range boilers created by building activities. All sizes are moving fairly well.

THE crop conditions have never been as bright. There is maturing throughout the entire western prairies the finest crop of grain that we have ever seen, even exceeding that of 1915, and it has been estimated by various authorities that the yield this year will be 500,000,000 bushels. Nothing but a calamity can prevent an exceptional harvest and all districts seem to have the same report. There is not a single section where the crops are not promising. Some areas have been visited by hail storms, and it is to be regretted that the losses in certain spots are severe, but the hail damage covers only a very small fraction of the country's acreage. A great deal of anxiety now prevails as to the possibility of black rust affecting the yield, but as far as I can learn to this date, no authentic reports have been received to warrant this anxiety. The weather has been much better during the last week or two, and if we get the continued hot days with cold nights and no rain, there should be very little trouble from rust. It is specially gratifying to know that some of the districts that have suffered most severely from drought during the last six or seven years are this year apparently going to harvest the finest crops of any.

Price Decline Serious

The decline in price of grain is a serious matter and it is to be hoped that the efforts of the various farmers' organizations to inaugurate a wheat pool will be of benefit, although many doubt whether it will be of much help. It must be expected, however, that with the tremendous crop in sight, with a large quantity available for export, the price cannot be a high one. It must be remembered that with last year's crop most of the farmers were able to liquidate a considerable portion of their indebtedness, and we have every reason to believe that with a good crop this year, the situation will be further improved and business will undoubtedly be greatly stimulated.

The spread between what the farmer has to pay for his supplies and the price he gets for his grain is altogether too great, but it is a pleasure to note from the statements of various farmers, that even under present conditions farming in this country is a paying proposition regardless of the reports to the contrary that have been spread broadcast throughout the country during the past couple of years.

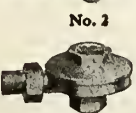
Less Credit

Collections during the early summer months have been as good as one could expect, and in fact have been somewhat better than the previous year. The farmers are asking and the dealers are giving less credit, which makes a much healthier condition, and strenuous efforts will undoubtedly be made by all the dealers to collect their outstanding accounts as early as possible after the crops are threshed.

Dunham Radiator Traps Insure Service¹ that is Noiseless—Sure—Lasting



No. 1



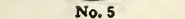
No. 2



No. 3



No. 4



No. 5

The Dunham Two-Part Radiator Trap

Made in five sizes as shown. The Nos. 1, 2 and 3 Traps are regularly furnished nickel-plated and with union nut and nipple, threaded right hand. They may be supplied in angle, straightway, right hand, or left hand pattern. The body and cover are made of red brass.

The Nos. 4 and 5 Traps are painted battleship gray and furnished in either angle or straightway patterns with female right hand threaded connections, both inlet and outlet. The body and cover are made of the best gray cast iron.

Maximum operating pressure ten (10) pounds gauge.

Dunham Radiator Traps were the first thermostatic disc traps. After 20 years of unparalleled service they are still the last word in radiator trap efficiency. To the heating contractor who has experienced the annoyances of other types we recommend the Dunham Trap as a certain means to personal satisfaction and better pleased customers.

The Dunham Radiator Trap automatically releases all air and condensate and retains the steam within the radiator. Its construction is simplicity itself. Write for detailed technical information to-day.

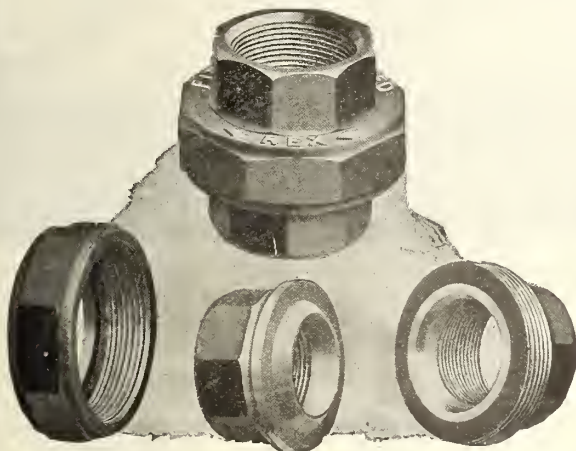
C. A. DUNHAM COMPANY, LTD.

Toronto - Ontario

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London, Eng.: 18 St. Thomas St., S.E. 1.

The DUNHAM
HEATING SERVICE
(Made in Canada)

Seven Points of "REX" Union Superiority



- 1 "Rex" Unions are tested and guaranteed to stand 250 lbs. working pressure.
- 2 The counterbored ends prevent the first thread becoming battered and permits an easy entrance of the pipe.
- 3 They will not corrode and will withstand vibration, expansion, contraction, fluctuating pressures and other severe conditions.
- 4 The bronze to iron seat, as used in "Rex" Unions, is recognized as the best known combination of metals to be used for permanent joints and where frequent disconnecting is necessary.
- 5 The octagonal shape of the three parts permits of connections being made with an ordinary monkey wrench.
- 6 The uniform diameter of the waterway insures an unobstructed flow and thorough drainage.
- 7 "Rex" Unions can be supplied threaded to either Briggs or Whitworth Standard and can therefore be used for your export trade.

A Proof of "Rex" Union Superiority
Canadian Car & Foundry Company, Limited
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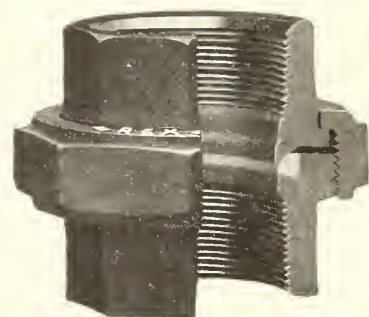
FITTINGS, LIMITED, Oshawa, Ont.

Dear Sirs:—Confirming our conversation with regard to Rex Unions; as you are aware, we have recently purchased from your Company a large quantity of Rex Unions, and have found them satisfactory in every respect. They appear to have more metal in them than other Unions, and we also find them interchangeable; in fact we are very well pleased with them and intend specifying your Unions on our orders where we can consistently do so.

Yours very truly,

CANADIAN CAR & FOUNDRY COMPANY, LIMITED,

FITTINGS LIMITED
Oshawa, Canada



Manufacturers of
"DIAMOND" PIPE FITTINGS

Canadian Exhibition Train Now in France

Formal Opening Took Place at Le Havre—Sanitary Engineer Finds Place in Exhibit—French Government Constructed Thirty Special Motor Trucks—Two Months Will be Spent in Paris

ARRANGEMENTS with regard to the various exhibits of Canadian manufacturers and producers, which will compose the Canadian Exhibition Train for France, are now completed and the formal opening took place on July 15 at Le Havre.

The French exhibition train in Canada was of the usual railroad type, but owing to the unsuitability of French railway trains and stations the French government have had constructed forty large motor trucks, thirty of which will contain exhibition cases approximately 19 ft. 6 in. by 6 ft. 6 in. by 6 ft. 6 in. These cases will be decorated as first-class modern show windows, and the manufactured products and produce of Canadian farms, mines, fisheries, forests, and factories will be attractively arranged within. Ten motor trucks will accompany the convoy to carry all necessary equipment in the matter of lighting, extra supplies, printed matter and baggage.

At each point in the itinerary the thirty exhibition trucks will be drawn up in a double line from twenty to thirty feet apart. The inner sides of the motor trucks will open outwards. The upper leaf will be raised to extend outward as a partial shelter; the lower leaf will be lowered to cover the wheels. The upper leaves will be joined by a vellum covering so that a covered passage-way will protect visitors from inclement weather.

Canadian manufacturers and producers who are represented on the train will benefit both by orders which they may book, and by the opportunity afforded them of establishing agencies or appointing representatives throughout France. A further point which may be of even greater advantage to them is the fact that they will be brought into close contact with buyers and will be able to gather information as to their real requirements as regards quality and style of manufactured goods which will enable them to sell successfully in French markets. No samples or goods of any kind are, however, to be supplied from the train, the entire furnishings of which have been admitted into France through courtesy without a tariff charge.

In co-operation with the French Committee the Government have made arrangements to supply representatives with a list of possible clients at every point visited. Provision has been made by the French Government for the transport and lodging while travelling of 40 persons with the convoy.

The Canadian Government are preparing an attractively designed poster, and have made arrangements to have it placarded in the chief towns and cities

The MACLEAN PUBLISHING CO. Limited Fondée en 1886

Nos publications comptent 40,000 lecteurs parmi les marchands de gros, les détaillants, les hommes d'affaires, les capitalistes et les industriels, et 500,000 parmi la clientèle la plus riche au Canada. Lisez-les.

NOUS CONNAISSONS LE CANADA. CONSULTEZ-NOUS.

SI VOUS DESIREZ VENDRE AU CANADA, CONSULTEZ-NOUS

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The MacLean Publishing Co. Limited
143 153 UNIVERSITY AVENUE
Toronto, Canada

Publications shown include: POWER HOUSE, The Financial Post, Canadian Grocer, Canadian Machinery, Canadian Foundryman, Canadian Automotive Trade, Gill Hardware Metal, Druggists' Weekly, and others.

Nous Connaissons Le Canada. Consultez-Nous.

Photograph of the MacLean Publishing Company's exhibit which occupies part of one of the coaches of the Canadian Exhibition Train which is to tour France. The exhibit shows copies of recent issues of the various papers published by the MacLean Publishing Company, viz.:—

Bookseller and Stationer
The Financial Post
Canadian Grocer
Hardware and Metal
Dry Goods Review

Men's Wear Review
Canadian Machinery
Canadian Foundryman
Druggists' Weekly
Power House

Printer and Publisher
Sanitary Engineer
Canadian Automotive Trade, and
MacLean's Magazine

of France during the tour of the Exhibition train.

At the completion of the tour the motor convoy will proceed to Paris and will be set up close to the Orangerie near the Place de la Concorde. New features will be installed from time to time to keep up the public interest. The exhibition in Paris will continue for two months.

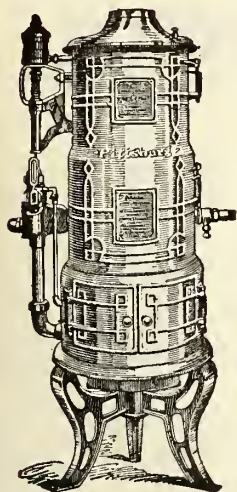
The MacLean Publishing Company's exhibit of which an illustration is given on this page will take up one end of one of the motor trucks. The exhibit is

made to imitate a store window and will display copies of the various MacLean Company's publications. Accompanying the exhibit there will be an attendant who will have a bound file of the latest copies. Specially printed cards in French will also be distributed to inquiring individuals. The attendant has also been supplied with a bound and indexed folder which enables him to give full information in regard to every MacLean publication.

A complete list of exhibitors will be published in a future issue.

What do you want to know about WATER HEATERS?

Send for the new complete catalog
of the complete Pittsburg Line



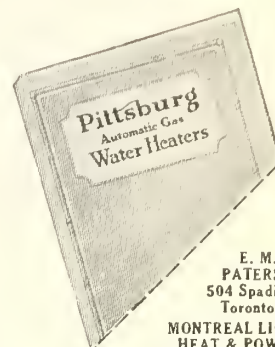
THIS new book is more than a catalog displaying and describing the eighteen different sizes and types of water heaters that make up the Pittsburg line. It is a complete reference book on water heating. It not only gives in detail the construction of Pittsburg Heaters, but contains also full details of the methods of installations, the operating costs, the flue and gas conditions necessary for the operation of tank, storage, automatic and supplementary hot water systems for every purpose.

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will hereafter be known as the

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As its "Standards of Practice," the Business Newspapers Association has adopted a set of working principles unsurpassed in any field of advertising or publishing. Only such papers that can live up to these standards are accepted to membership.

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Fig. 490.
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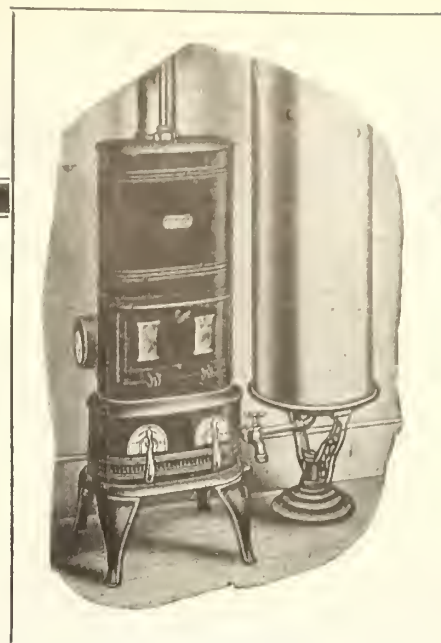
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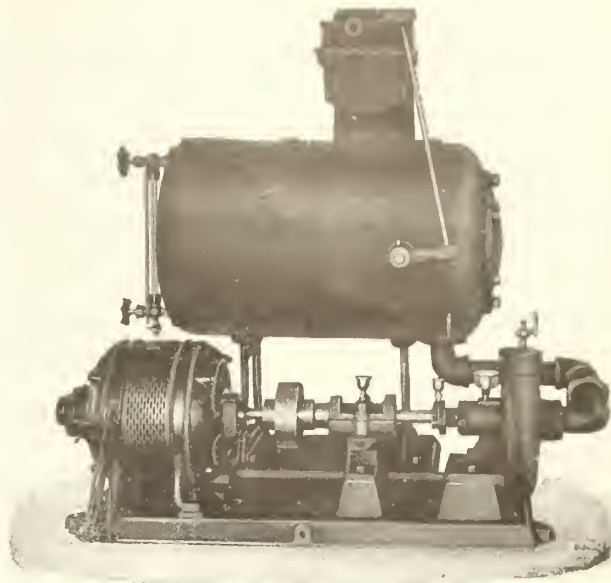
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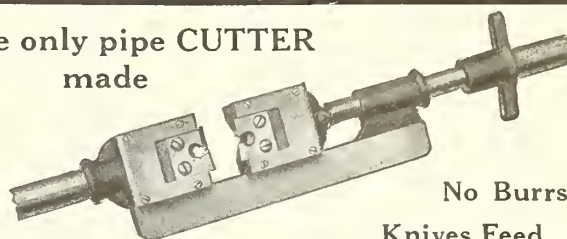
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No Burrs.

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Steel Trough & Machine Co., Ltd., Tweed, Ont.

TANKS—GASOLINE

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TANKS—STORAGE

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TANK BULBS, (RUBBER)

Canada Metal Co., Ltd., Toronto.
W. H. Cunningham & Hill, Ltd., Toronto.

TOOLS

Wolverine, Ltd., Toronto.
Empire Mfg. Co., London and Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
Standard Sanitary Mfg. Co., Ltd., Toronto, Hamilton.
W. H. Cunningham & Hill, Ltd., Toronto.

TORCHES

W. H. Cunningham & Hill, Ltd., Toronto.

UNIONS

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Dart Union Co., Limited, Toronto.
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VAPOR HEATING SYSTEMS

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VITRO TANKS

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Jenkins Bros., Ltd., Montreal, Que.
The Kerr Engine Co., Walkerville, Ont.

WATER SUPPLY SYSTEMS

Canadian Fairbanks-Morse Co., Ltd., Montreal, Que.
Delco-Light Co. of Canada, Ltd., Toronto, Ont.
Empire Mfg. Co., London and Toronto.
T. G. Griffith & Co., Ltd., Toronto, Ont.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
Smart Turner Machine Co., Ltd., Hamilton, Ont.
Standard Sanitary Mfg. Co., Ltd., Toronto, Hamilton.
Steel Trough & Machine Co., Ltd., Tweed, Ont.

WATER HEATERS

Gurney Foundry Co., Ltd., Toronto, Ont.
Ruud Mfg. Co., Toronto.

WASHERS

Canada Metal Co., Ltd., Toronto.
W. H. Cunningham & Hill, Ltd., Toronto.

WASHING MACHINES

Gurney Foundry Co., Ltd., Toronto.

WRENCHES

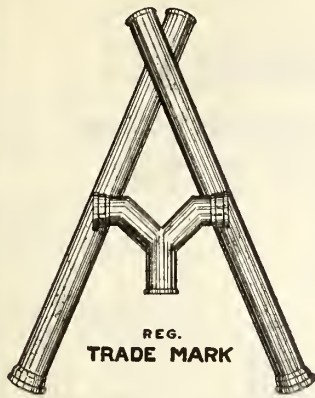
Greenfield Tap & Die Corp., Galt, Ont.
Trimont Mfg. Company, Boston, Mass.

WROUGHT COUPLINGS AND NIPPLES

Canada Metal Co., Ltd., Toronto.
Fittings, Ltd., Oshawa.

When Answering Advertisements Mention SANITARY ENGINEER

If interested, tear out this page and place with letters to be answered.



USE

TESTED Soil Pipe

IT COSTS NO MORE AND YOU KNOW THE JOB IS RIGHT

Manufactured by

FORWELL FOUNDRY, LTD.

KITCHENER, ONT.

A Suggestion

"Medium Weight soil pipe has a round bead pattern at the hub to distinguish it readily from the Extra Heavy weight pipe which has a flat bead pattern.

This is only a matter of design, one being as strong as the other.

We respectfully suggest the advisability of continuing the excellent practice of invariably specifying medium weight pipe in the round bead pattern."

**TORONTO HARDWARE MFG.,
CO., LIMITED**



Style R

Advantage No. 7

They make radiator installing a quicker, easier job, saving steam fitters' wages

For ANY style radiator; ANY type wall construction

Write for the whole list of their advantages

Healy-Ruff Co.

Dept. 23

Minneapolis, Minn.

"Made in Canada"



Are These The Opportunities You're Looking For?

Fan Heating and Ventilating Engineering is the pinnacle of all other forms of heating, and of all branches of steam fitting and sheet metal work. It prepares you for:

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[] Fan Heating and Ventilating Engineering. [] Sheet Metal Design and Pattern Drafting.

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O. W. Kothe, Prin.

St. Louis, Mo.



DESOLVO makes Regular Monthly Customers

A specialty you'll sell more regularly than many staple items. Thousands of Desolvo dealers say, "The first 50 cent can is always followed every month by another, because it

keeps their customer's drain pipes cleared of obstruction and unsanitary odors."

You can sell a can of Desolvo to every customer, every month. It moves steadily once a customer knows what it will do.

A small investment which nets you a good profit. Sold through jobbers.

K-K—A companion to Desolvo, cleans closet bowls, removes stains and odors.



The Chamberlain-Desolvo Co., Ltd.
Toronto . Canada



These machines are used in many of the largest industrial plants returning condensation from Heating and Steam process work under various conditions.

It will pay Heating Contractors to give more attention to the utility of our return traps.

They save coal, raise efficiency and for this reason are steadily superceding Boiler Feed and Vacuum Pumps.

Send us your next prospect, also send us your trouble jobs of heating or other steam work.

See us in Machinery Hall, Canadian National Exhibition, Aug. 25 to Sept. 8.

J. E. FARRELL, Director of Sales
304 Manning Chambers, Toronto

WROUGHT PIPE



Suitable for the approaching period of building activity, road construction, etc. This is a line of great importance in making successful, profitable contracts. Our C. T. Brand of Wrought Pipe has been

THOROUGHLY INSPECTED

by practical, experienced men. It is tested to 600 lbs. hydraulic pressure, and branded with our trademark. We carry this line of reliable pipe in sizes 1/8-in. to 4-in. Black or Galvanized. We also manufacture nipples and couplings, black and galvanized, in all sizes.

Ask your Jobber for C. T. Brand Wrought Pipe
Canadian Tube and Steel Products Co., Ltd.
Operating Canadian Tube and Iron Co., Limited
Works at Lachine Canal, Montreal

PATENTED
CANADA



**Better
Selling
Value
Than Ever**

We have equipped our Steel Baths with Pressed Steel Removable Legs and 3 inch Roll Rim around the top, for which we have secured a Canadian Patent. This Roll Rim adds greatly to the selling value of

TWEED ENAMELLED STEEL BATHS

They now look like the expensive cast enamel baths but are the same price as before. Our new patent Roll Rim Enamelled Steel Baths are now ready for shipment—Order samples.

The Steel Trough & Machine Co. Ltd. Tweed, Ont.
Toronto Office—220 King St. W. A. R. Wooldridge, Representative.
Montreal Office—10 Victoria St. G. M. Price, Representative.



Tapped Closet Bend

Easier to attach
More permanent
Cost less



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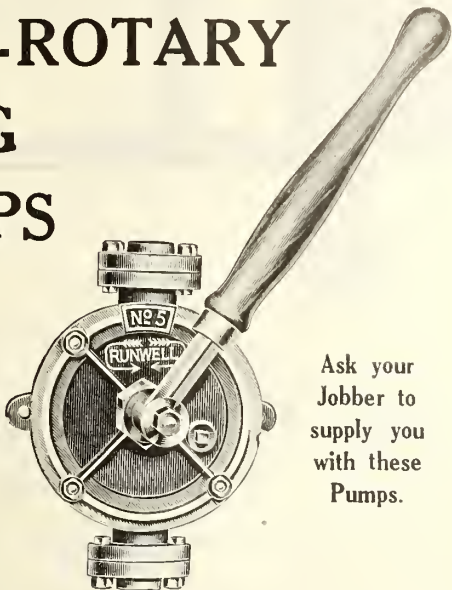
TRADE

RUNWELL

MARK

SEMI-ROTARY WING PUMPS

British
Manufacture



Ask your
Jobber to
supply you
with these
Pumps.

Representatives:

BRITISH COLUMBIA; U.S.A.—WASHINGTON, OREGON, CALIFORNIA.

FRANK RAW & CO., 325 Howe St., Vancouver, B.C.

MANITOBA, SASKATCHEWAN, ALBERTA:

FREDERIC SARA & CO., Calgary.

ONTARIO, QUEBEC, MARITIME PROVINCES:

UNIVERSAL SUPPLIES, LTD., 212 Coristine Bldg., Montreal.

CHRISTIE UNIT SYSTEM SEPTIC TANKS

Convenience for ALL. Thousands of homes can be modernized. Any place where there is NOT a Public Sewer CHRISTIE'S UNIT SYSTEM SEPTIC TANK is the only correct method of disposal.

HEALTHY, CONVENIENT, ECONOMICAL

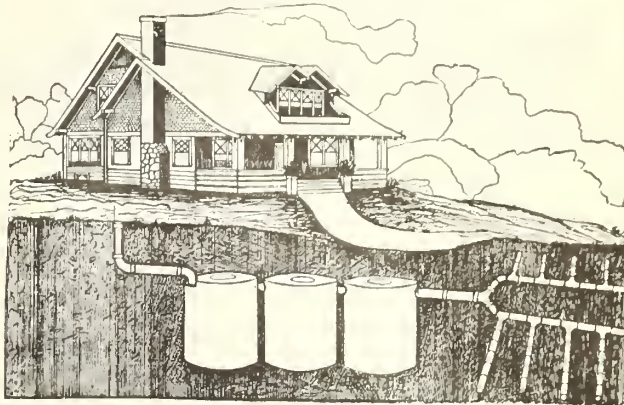
Made of Reinforced Concrete. Can be shipped anywhere. Easy to install. Low in price. Both syphon and overflow type. No job too small. None too large. We have a type for both heavy and light soils.

HOMES, SCHOOLS and SUMMER HOUSES.

Write for catalogue and dealers' price list.

Manufactured By

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Lindsay, Ontario



PATENTED

Burnham Boilers

The Great Point About Its Grate



The Twin Burnham has Twin Grates. Each grate bar is only 24 inches long and weighs only 40 pounds. Send for catalog.

Lord & Burnham Co. Limited
of Canada

(Boiler Department)

Harbor Commission
Building,
Toronto, Ont.



Factory:
St. Catharines, Ont.



Made with Steel Handles in all sizes.

"Trimo" an aid to real results

If you are thinking of doing a satisfactory job without the aid of a reliable wrench stop right there!

You can't do it!

Sit down and write us about the "Trimo," the wrench with the Steel Frames, Nut Guards and Insertable Jaw that renews the handle.

Made with Wood Handles in 6", 8", 10", 14" sizes.

Trimont Manufacturing Co.

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Canadian Representatives:
Geo. P. Fraser, 28 Temple Ave., Toron'o





Three Simple Steps and it's Installed

FIRST — *Excavate* SECOND — *Slip Tank in Place* THIRD — *Connect Drains*

Just as simple as that all finished in a couple of hours and you are home again with a nice fat cheque in your pocket.

Griffith Septic Tanks are designed in both Syphon and Overflow types, are made of copper bearing steel and are absolutely and permanently water tight. All sizes.

Write for catalogue of our complete line of sanitary equipment.

Chemical Toilets, Septic Tanks, Water Systems.

Manufacturers and
Sanitary Engineers

T. G. GRIFFITH & COMPANY

165 King Street East,
TORONTO, Ontario

Babies, Fires, Marriages, Accidents Building Activities

All mean business for someone.

EVERYTHING
that happens
creates sales
and business
opportunities.

The baby carriage maker and retailer should know of every new baby.

Builders, Credit Managers, Insurance Companies, should know of every fire.

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Building activities of every description, presage business for Architects, Builders, Plumbers, Stove and Furnace manufacturers, Roofing Companies, Furniture Houses, Steamfitters, Cement Makers, Plate Glass Companies, and a host of others.

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Toronto

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Simplex Cast Iron Traps Built for Service



No. 282

Made in two sizes 1 1/4" and 1 1/2"

Self-Scouring Adjustable Non-Syphoning

Others may look the same but?



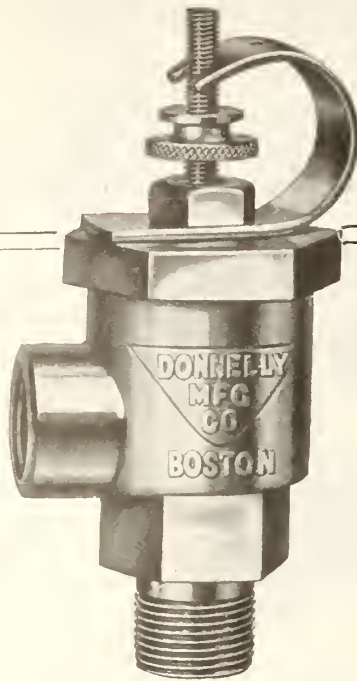
"Sure Seat" Tank Balls

Finest
Quality

Durable

Reliable

Absolutely
GuaranteedIt pays to have Wolverine Articles on
hand for instant use. ORDER NOW.



The Donnelly Pressure Relief Valve for closed plumbing and hot water heating systems makes homes safe.

Life—Property Insurance at a Low Rate

A Donnelly Pressure Relief Valve offers absolutely reliable protection against explosions due to excess pressure in closed plumbing and hot water heating systems at a cost that is negligible in proportion to its value.

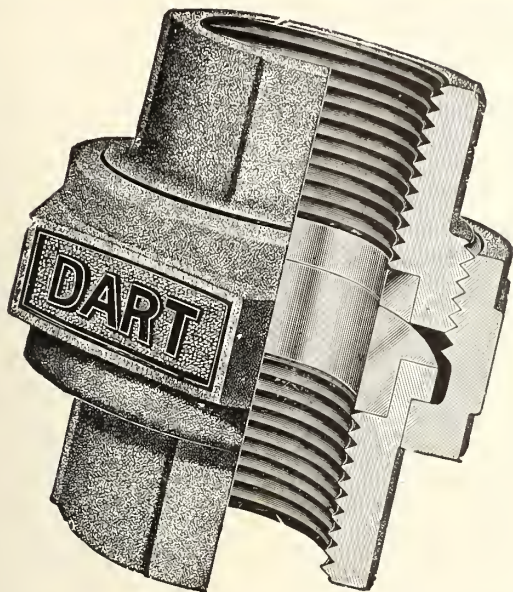
It has no weights—no interior springs—it will not stick or corrode and functions like clock work. Any mechanic, in a moment's time can set it for any pressure from a fraction of a pound up.

It is fully guaranteed.

Ask Your Jobber or Write Us

IRA I. NELSON
PLUMBING SPECIALTIES
TEN HIGH STREET
BOSTON, MASS.
U. S. A.

DART UNIONS



Stay Tight Permanently

No Upkeep Cost
No Replacement Cost
No Loss from Leaks

*Because—THEY ARE BRONZE TO
BRONZE AT THE JOINT*

Your Jobber Sells Them

Manufactured by
DART UNION CO., LIMITED, TORONTO, ONT.

KERR VALVES

Need No Introduction

Kerr Radiator Valves for steam and hot water heating need no introduction to the trade.

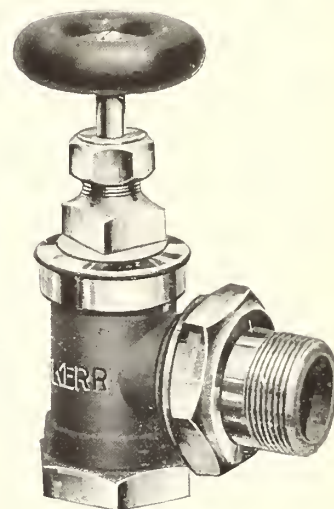
Heating engineers right across Canada specify Kerr Valves when ordering because they are certain at all times of uniform excellence and satisfaction.

Kerr N. P. Union Elbows register with either the Hot Water or the Steam Valve and are the same high quality.



No. 31.

Order From Your Jobber



No. 39.

The **KERR ENGINE COMPANY**
LIMITED

WALKERVILLE

Valve Manufacturers

ONTARIO



Tuned Up by Experts

THAT we place the utmost importance upon the proper functioning of Vitro Tanks is shown by the fact that they are always sold complete with fittings.

These fittings—Vitro Fittings all of them—are installed by us at the factory and tested carefully **before** the tank goes on the market.

This means that Vitro Tanks, in addition to being equipped with fittings that are built especially for them, are tuned up by experts who can detect and remedy any tank defect that may show signs of developing.

This mechanical perfection plus the sheer white gloss beauty of Vitro Tanks accounts in a measure for their great popularity. They again lead in sales, for the first six months of 1923, every other tank in the market.

Galt Brass Company, Limited

GALT

-

-

ONTARIO

VITRO
NOTROUBLE
TANK

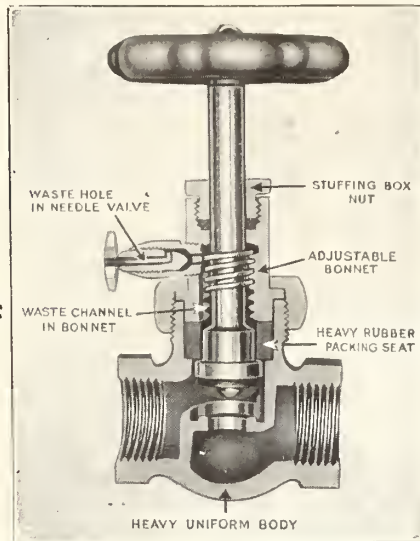
Sanitary Engineer

Plumber and Steamfitter of Canada

Vol. XVII.

PUBLICATION OFFICE, TORONTO, AUGUST 15, 1923

No. 16



“Emco” Stop and Waste Cock

Note the special features of our A332 stop and waste cock.

The waste water bonnet is adjustable, it may be turned in any direction, the needle valve may be closed, preventing rush of water from waste when turned off.

No. A-332 may be adapted to either straight stop or stop and waste cock.

Install Emco products and you give your customer a guarantee of plumbing satisfaction.

All Emco products are rigidly tested before leaving the factory.

If your jobber can't supply you Emco products write us.

Empire Brass Manufacturing Co., Limited

London and Toronto, Canada



Partial View of Canadian National Exhibition
Showing Industrial Building on Right

See the "Pussyfoot" Closet Tank

Toronto Exhibition In the Industrial Building



We extend a cordial invitation to each and every member of the trade to call at our booth in the Industrial Building when visiting the Canadian National Exhibition, Toronto, August 25th to September 8th.

We have prepared an attractive exhibit that will, we believe, interest you.

On our part we are looking forward with a great deal of pleasure to the renewing of old acquaintanceships and the making of many new ones.

THE CANADA METAL COMPANY
LIMITED

Montreal

Hamilton

TORONTO

Winnipeg

Vancouver



No. 20 "Quietus" Plain.



No. 20-S-X "Quietus" side supply extended front lip.



No. 20-V "Quietus" Raised Rear Vent.

There is No Closet Better Than the QUIETUS

The manufacture of Canadian Solid Vitreous syphon jet closets is a science which has been perfected by years of exacting experience, and from the many and varied types which have been evolved the "Quietus" has been developed, unquestionably supreme.

To perfect the action of each different closet we manufacture is our first consideration and neither time nor expense has been spared to realize this end, with the result that the action of all closets we manufacture stands out strong, decisive and superior.

The "Quietus" would be a notable example of superior action were that its only feature, but in addition is introduced the element of QUIETNESS so that refinement has been added to substantial enduring utility. The "Quietus" is as nearly silent as a closet can be made.

This is accomplished by special construction of the water supply, so that instead of permitting the water to rush in with the usual noise, its flow is retarded so that it glides into the bowl so quietly that the action of the closet cannot be heard outside the toilet-room itself.

Made of Solid Vitreous ware, through and through, the "Quietus" ensures a life-time of unchanging service, its impervious white lustrous surface being as easily kept clean as a china plate. Its quietness of operation is its final recommendation to people of refinement who appreciate the removal of embarrassing noise from the toilet.

In addition to the plain design closet, we can furnish the "Quietus" with extended front lip, side supply and raised rear vent as shown in the illustrations, to suit architectural requirements calling for these special features.

**Our sales are handled exclusively through the
recognized jobbers in plumbing supplies.**

CANADIAN POTTERIES
LIMITED
SAINT JOHNS
QUEBEC

The Delco-Light line of electric pumps means more sales, easier sales! —more dollars in your pocket!

WHEN you handle Delco-Light Electric Pumps you have available 26 different styles and sizes. You have a size to fill the needs of any prospect. You handle a line of pumps made by Delco-Light, and backed by the Delco-Light organization. Pumps for deep or shallow wells; for A.C. or D.C. service; for any capacity; for deep wells you have either the $\frac{1}{4}$ H.P. or $\frac{1}{2}$ H.P. pump of the pitless, weather-proof type—superior to any deep well pump ever put on the market. All simple in design. No exposed moving parts. Only one place to oil. Easily installed. Extremely low in price and at the same time they have the superior quality which has made Delco-Light deservedly famous.

This is the best line of electric pumps ever offered. It means more sales, easier sales—more dollars in your pocket! The Delco-Light Distributors have a proposition waiting for plumbers and pump dealers. Write today and find out about it. Send a postcard to your nearest distributor.

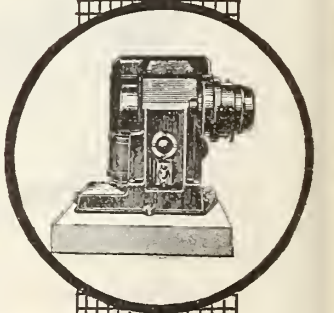
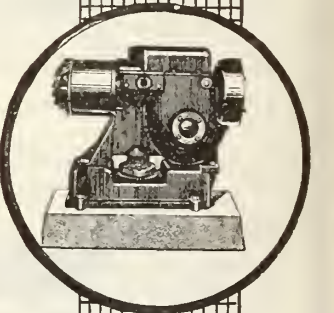
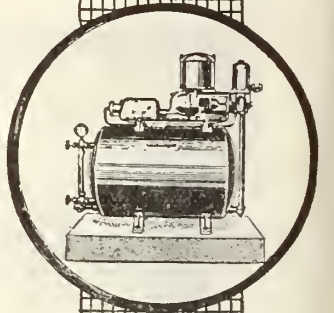
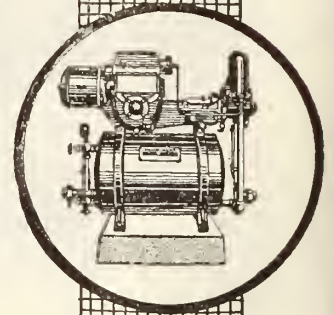
Delco-Light Co. of Canada, Limited
Toronto, Ontario

Distributors:
ELECTRICAL SYSTEMS LIMITED
173 King Street East
TORONTO, ONT.

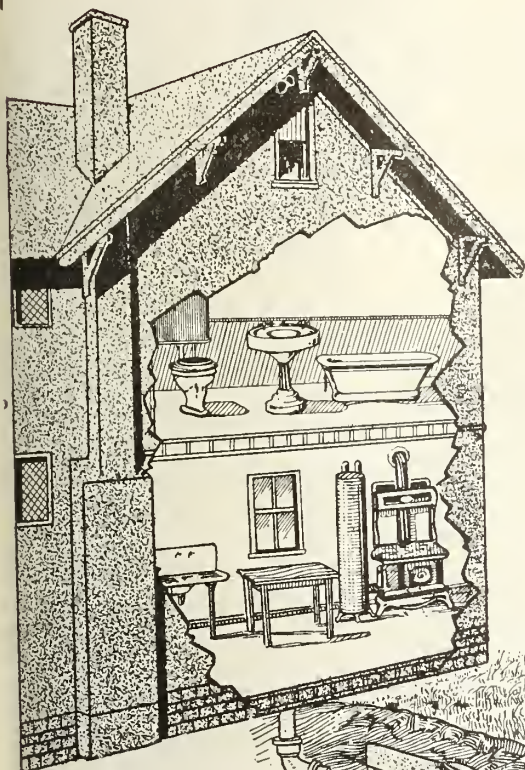
DELCO-LIGHT

Water Systems

For Country and City Homes

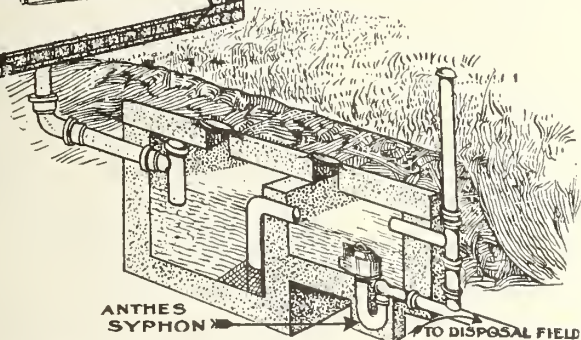


Good Business Now Better Business to Come



Rural dwellers need septic tanks and need them badly. In the not far distant future these farmers and suburbanites, instead of waiting to be sold, will ask for sewage disposal systems voluntarily.

Naturally they will seek advice from the Sanitary Engineer in their district who has made a practice of installing equipment of this sort. If you are not pushing the sale of sewage disposal systems you are losing not only immediate business, but also future business of great potential value.



Get in touch with us and let us show you how to boost sales in sewage systems.

Use Only Anthes Syphons, Soil Pipe and Fittings.

Anthes Foundry Limited

Toronto and Winnipeg

Manufacturers of Cast Iron Soil Pipe and Fittings

New King Selling Points

Boilers with easily understood and convincing selling points that "get over" with the average householder—are the kind of boilers you like to sell.

The New King Hot Water Boiler is that kind of boiler.



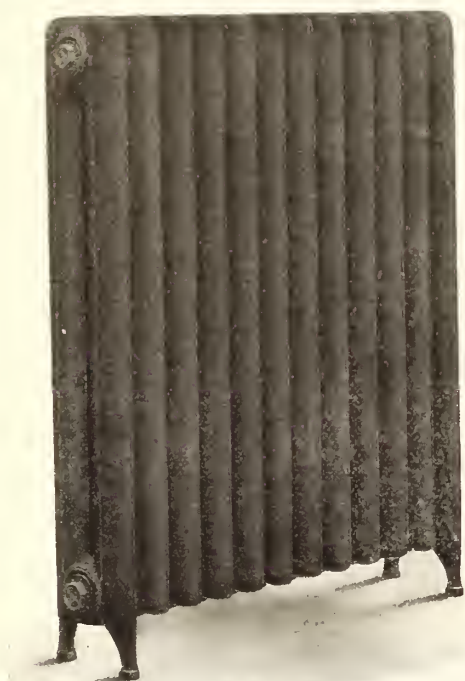
Note these points of superiority:—

The two side nipple construction gives positively balanced circulation of water over all Heating surfaces. No other Boiler has the same positive water travel as the New King Boiler.

The "New King" firepot is made entirely independent of the **first** section, resulting in easier erection and less costly replacements in the event of accident.

These are two of the details of construction which ensure the maximum volume of heat delivered to the rooms, with the minimum expenditure of fuel.

IMPERIAL RADIATORS have graceful, pleasing lines; they add beauty to a room. Then too, they give positive, unfailing heat satisfaction throughout their long years of service.



Write to-day for new catalogue and prices.

IMPERIAL RADIATOR COMPANY, LIMITED

228 St. Helen's Ave.

:

:

Toronto, Ontario

Works at St. Catharines

Here's Wrench Versatility!

The New "Little Giant" PIPE WRENCH

adapts itself to the hundred and one out-of-the-way places where you have found the ordinary wrench cannot swing, or even reach in and take hold.

Because of the "Little Giant" design (only three jarts) the movable jaw can be engaged with either of two sets of teeth on the small wrenches and of four sets on the larger ones. At least double the wear is the result.

No springs or frame on this wrench—nothing to break. The entire wrench is of drop-forged, heat treated steel, with an extra long handle—more power with the strength to back it up, though actually lighter in weight and easier to handle.

Let us tell you what other engineers say who have used them. Descriptive circular on request.

**Gets into
holes and corners**

Your supply house carries the "Little Giant" or can get it for you. Insist on having it.



"Standard"
PLUMBING FIXTURES

Standard Sanitary Mfg. Co., LIMITED, TORONTO

Two Bathrooms Instead of One

A home is modern and thoroughly comfortable when it has at least two complete bathrooms.

Two bathrooms instead of one! There is a real selling idea. Talk it to prospective house builders and architects. And be sure the bathrooms are **"Standard"** equipped.

Standard Sanitary Mfg. Co.
Limited

General Office and Factory :

Royce and Lansdowne Aves., Toronto, Ont.

Toronto Showroom:
55-59 Richmond St. E.
Montreal:
705 McGill Building.

Winnipeg Showroom:
145 Market St. E.
Calgary:
354 Eleventh Ave. W.

Hamilton Store:
20-28 Jackson St. W.
Vancouver:
860 Cambie St.

"MADE IN CANADA"

Advertising to Build Up Business

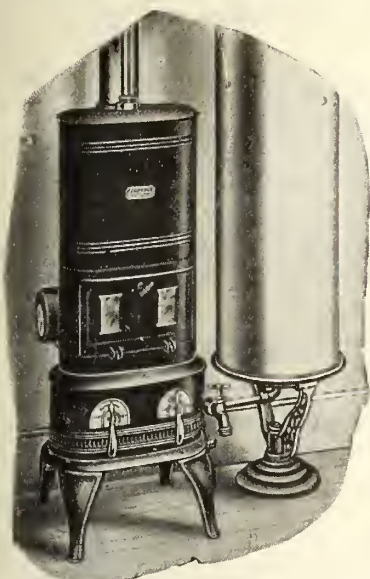
A valuable service is being rendered plumbers and builders by the strong advertising campaign for **"Standard"** Plumbing Fixtures now running in Canada's newspapers and magazines.

The cut here used is a sample of this advertising.



Your Town's the Town

In the suburban districts of Your Town—in the farm homes that encircle Your Town—there must you seek and GET the profitable business of selling and installing the Florence Oil Water Heater. That plumbing business generally is good helps not at all unless it is good in Your Town.



Florence Oil Water Heater

The way to make business good in Your Town is to go after it the McClary way.

A line written to-day to our nearest branch will bring you by return mail literature and selling plans, that if fairly followed out, will result in much profitable business.

The Florence Oil Water Heater, here illustrated is a sturdy, compact, inexpensive heater that can be installed anywhere and brings at once city comforts to suburban life. It is simple, safe, efficient and economical. Every farmer and suburbanite in your district is a prospect.

McClary's

London
Vancouver

Toronto
St. John, N.B.
Saskatoon

Montreal
Hamilton
Edmonton

Winnipeg
Calgary



Another Open Letter

Dear Sir,—

I would like to have half an hour with you, and perhaps we can get together if you are in Toronto at Exhibition time.

As of course you know, we make a complete line of Products for Heating and Cooking. And, like every other live concern, we back them up with service and selling helps.

But I believe we could do much more to really help our customers sell, if we knew your particular problems better. I believe we have a group of men who really can help you, and that closer acquaintance will mean more profitable sales for both of us.

So this is my appeal to you to **come in**—either at our Toronto office, or at any branch, and talk it over with the men who are trying to help our dealers. I'd like to make this just as emphatic as I can. Your friends in this organization will be glad to see you; and if we know each other better, we can work together for larger business in a more efficient way.

We go into the fall with splendid stocks, new lines and aggressive selling helps. You and ourselves, perhaps, can team to even better advantage.

Faithfully yours,

A handwritten signature in dark ink, appearing to read "Holt Gurney", with a horizontal line drawn underneath it.

President

THE GURNEY FOUNDRY CO., LIMITED

"Everything for Heating and Cooking."

ESTABLISHED 1907

PUBLISHED TWICE MONTHLY

Sanitary Engineer

Plumber and Steamfitter of Canada

Vol. XVII

TORONTO, AUGUST 15, 1923

No. 15

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The MacLean Publishing Company, Limited

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Sell Powder Puffs to Coal Miners

By Jesse H. Neal

HERE is what the Chicago Daily News had to say in one of their own advertisements:

"Perhaps coal miners ought really to powder their noses and look pretty, but we doubt if you would advertise powder puffs in Coal Age, any more than you would picks and shovels in Vanity Fair."

Absurd, ridiculous, impossible, of course; but how about advertisers who, judging by the mediums used, are trying to sell five ton trucks to clergymen, travelling cranes to Vassar undergraduates, leather belting to stock brokers, and concrete mixers to chamber maids.

Advertisers of this type cannot be fishermen, because any fisherman knows that trout are caught with a special rod, bait suited to the season and the locality, skillful handling of the tackle, and that the fishing is done in trout streams, not on the Grand Banks.

The nature of the contact is all important. It is the fundamental principle which underlies the peculiar value of all publications of whatever nature. It is not how many readers are reached, but HOW they are reached. Everything hinges upon the nature of the contact effected.

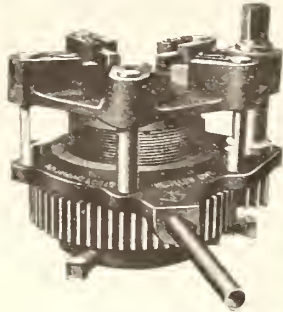
If this were not true you could send out messenger boys instead of salesmen to speak a piece to each prospect. Why then send out salesmen? Because a salesman is something more than flesh and blood, just as a publication is something more than paper and ink.

What would you think of a salesman who came in to report that he had reached forty prospects in one day? Probably you would remark that you didn't care how many doors he had knocked on, but you would like to know what was the nature of the contact.

I seek the advice of a garage mechanic on my carburetor, but would not look to him for advice on my teeth, nor respect it if volunteered. Likewise, a man's attitude towards a publication depends on his respect for its authority.

If you ask me for a definition I would say: "A publication is a piece of paper and ink plus its editorial value, its character, personality, standing with the readers and general reputation." Its advertising value over and above a piece of printed matter will be proportional to the plus element.

If I were buying space, and I have bought a lot of it, I would ask myself, 1. Is the paper essential to its field? 2. What is the evidence of reader interest? 3. Is the reader interest proven by voluntary paid subscriptions? 4. Are the paid subscriptions audited by the A.B.C.? 5. Is the character of the paper verified by membership in the Associated Business Papers?



No. 2 Toledo Geared Threading Tool. Capacity 2½ in. to 4 in.

More Work and Better Work With

Toledo and Jardine Pipe Threading Tools

This tool threads pipe with less labor than others. It is so simple in construction that it is easier to do work right than to do it wrong. It is compact, light in weight, strong and durable, accurate and speedy. It costs no more than imitations and in one month's production will more than pay for itself.

Ask the man that uses them

Made in Canada—Leading Supply Houses will quote you

**One Man Does The
Work Of Two**

A. B. Jardine & Co., Limited, Hespeler, Ontario

Ontario, West of Brockville:
W. H. Cunningham & Hill,
269 Richmond St. W., Toronto, Ont.

Brockville and East:
J. R. Devereaux & Co.,
New Birks Bldg., Montreal, Que.

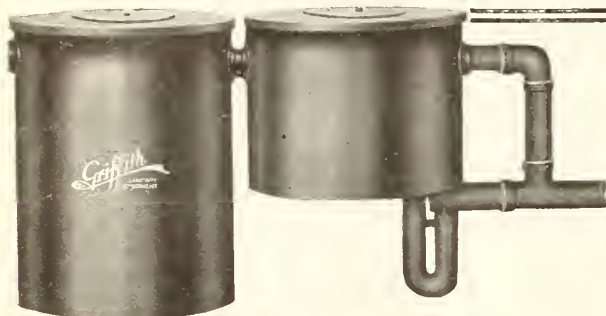
Winnipeg and West:
Stanley Brock, Ltd., Winnipeg, Man.,
Calgary, Alta., Vancouver, B.C.

SIGN AND MAIL THIS COUPON AND GET A CATALOGUE

Name

Address

Sanitary Engineer.



See Us at the Toronto Exhibition

At our Booth in the Toronto Exhibition, Aug. 25—Sept. 8, will be exhibited the full Griffith line of Septic Tanks, Chemical Closets, etc. Dayton Pumps, which have impressed the Trade so favorably, will also be shown.

Griffith's all metal Septic Tanks and Dayton Pumps by their fine sturdiness and simple installation have earned tremendous favor with Plumber and Client alike. Together they form the ideal installation job. Much profitable business in Griffith's Tanks and Dayton Pumps awaits the aggressive Plumber this Fall.

Be sure to come and see us; you can be certain of a hearty welcome. We are located on Lansdowne Avenue running north from the centre of Main Grand Stand and opposite the western entrance of Pure Food Building.



Manufacturers and Sanitary Engineers **T. G. GRIFFITH & COMPANY** 165 King Street East,
TORONTO, Ontario

Eastern Ontario Representatives: Shaver Bros., Booth Bldg., Ottawa, Ont.

Maritime Representative: Eagar Coombs & Co., Halifax, N.S.

Master Plumbers Support Apprenticeship Plan in Port Arthur

Local Building and Plumbing Inspector Conducts Technical Class Each Winter for Instruction of Plumbing Apprentices—Plumbers on Board of Examiners—High Percentages on Practical and Theoretical Work Secured by Some

"T EACH the young idea how to shoot," is a phrase that may be carried into every-day life and occupation. By teaching the young idea how to become plumbers, Arthur Peckett, building and plumbing inspector employed by the city of Port Arthur, is doing a work that will some day bring back to him the satisfaction of knowing that he was in a large measure responsible for to-day's apprentices, who tomorrow will be successful plumbers.

Mr. Peckett gives his services free and each winter conducts a plumbing class in the technical department of the Collegiate Institute. His pupils show a willingness to learn and he has this year been responsible for three young fellows getting their licenses as full-fledged plumbers. Mr. Peckett commenced teaching at the evening classes in 1912. He carried on the work until 1914, when war broke out and the classes were abandoned.

Re-established School

In 1915 he went to the war, and when he returned in 1919 re-established the plumbing school. Each year since, the class has progressed and is growing steadily. The class starts in October and ends in March. This year he had twelve pupils, namely: Hugh MacRae Jr., Nick Pacuzzo, Alex MacRae, Matt Slater, A. Peckett Jr., Fred Shirley, T. Bennett, Louis Anderson, Norman McGregor, Frank Peltier, John Sime Jr., and Peter Giraitt. They range in ages from sixteen to twenty-five years. For faithful attendance and diligence in work, Nick Pacuzzo, Alex MacRae, Matt Slater and Peter Giraitt were presented with certificates by the principal of the Collegiate night classes.

Compact Specimen Job

The photograph shows a miniature job done in a space that is only eight feet to the bottom of the joists, but the full job is completed for the roughing in of W.C., bath, basin and sink, batteries of W.C.'s and basins, and also the necessary venting.

Last year Mr. Peckett was able to

interest the Master Plumbers in the work he is doing. In addition to their co-operation in the classes, the masters each year give a banquet to the members of the class and present prizes for the best work done. This year, Mr. Peckett took up all manner of work, including the roughing in for batteries of basins. He teaches in lead work, jointing and sheet lead work, for he believes every boy should be taught this work so that when he goes out on his own he has ideas in the way of roughing in and is able to do it in iron as well as lead. The work of the plumbing class in Port Arthur has been recognized by such well-known firms as Mueller Mfg. Co.; W. H. Cunningham & Hill, Ltd.; Wolverine, Ltd.; Empire Brass Co., and the Plumbing & Engineer Supply Co., of Fort William.

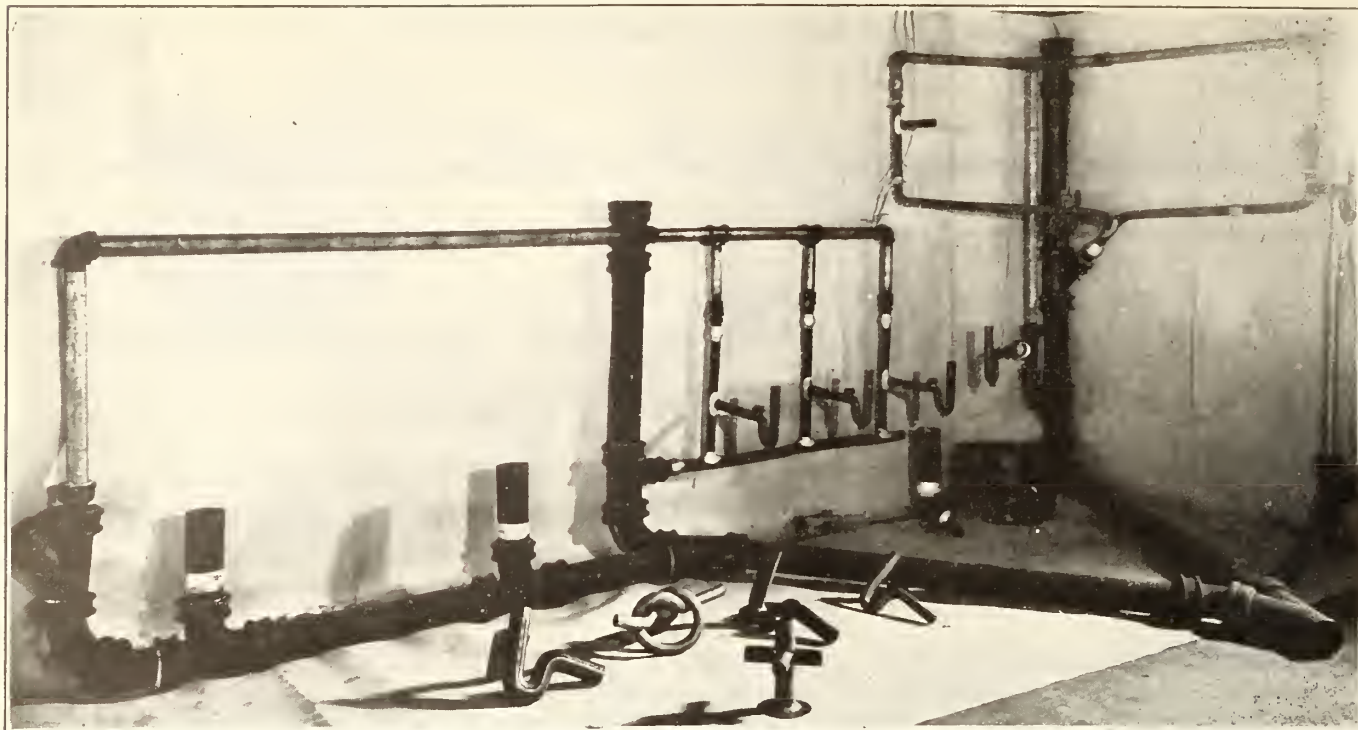
Examinations For Licenses

Examinations for licenses to act as plumbers were held in the Collegiate, and three candidates, unsuccessful on their first writing, obtained passing marks on their second. They have since been given licenses. The Board of Examiners was composed of J. W. Barnes, chairman, and R. A. Shaw, representing the masters; Matt McArthur and W. Kirkbride, representing the journeymen, and A. J. Peckett, secretary and inspector.

T. Bennett, employed by L. A. Green & Co.; Nick Pacuzzo, employed by the same firm, and Hugh MacRae Jr., employed by his father, passed and were granted licenses. MacRae's percentage was 84 and Pacuzzo and Bennett each secured 80 per cent. All three attended the school for three winter terms. Seventy-five per cent. was required for pass. Two and a half hours were allowed for the examination, and all three finished in two hours. Pacuzzo is an Italian, and this fact is pointed to with pride by Mr. Peckett, who says that the foreign boy has equal advantage with the native-born lad to make good if he will but apply himself. The candidates were examined as to their practical knowledge, theory and chart



ARTHUR PECKETT



Some of the work of the Port Arthur plumbing class is here illustrated. In the foreground is some work done by Thos. Peckett including a six-way outlet, traps in one and two pieces and a knot trap.

tests. The practical examination consisted of the wiping of 4 inch joints, 2 inch underhand joints, branch joint of 45 degrees, also making bends on pipe. Examination on theory required the pupils to answer twenty questions as applying to the rules and regulations covered by the city of Port Arthur by-law in respect to plumbing. The chart examination was given from Starbuck & Sons charts.

It is little wonder then that growing up in Port Arthur are boys who are to be a success at their chosen calling. Today they have advantages for nothing that boys a few years back would have paid hundreds of dollars to obtain. Mr. Peckett's work is appreciated in this community.

WILL TEST BYLAW IN COURTS

Winnipeg, Man.—The new plumbing bylaw recently put in force in St. Boniface may be tested out shortly in the courts. Partridge & Halliday, plumbers, have intimated in a letter that court action would ensue if this firm was not granted a license to operate. This license was revoked by Plumbing Inspector F. P. Jones on the ground that the firm did not live up to bylaw requirements. Mr. Halliday, of the firm in question, declared that the practice found undesirable had been carried on by him for the past ten years in Winnipeg without any complaint.

Field of Profit in Swimming Pool Business

Pointing Out Immense Advantages of Swimming Pools and Inadvisability of Constructing Pools Without Filtering Systems Gives Plumbers a Big Opportunity

ST. JOHN, N. B.—Plumbing contractors of the maritime provinces are awakening to the fact that in the installation of swimming pool connections, and swimming pool filtration systems, there is a field of profit. In the United States plumbing contractors have seen the possibilities of this field for many years.

Some years ago there was but one swimming pool in the city of St. John and that minus a filtration system. It was in the Y. M. C. A. building. Since then a pool was constructed in the Y. M. C. A., the plumbing work on the pool and six shower baths having been done by W. B. McDonough, of St. John, plumbing and heating contractor and owner of a plumbing supply store on Charlotte Street. A new pool is under construction in St. Vincent's School, St. John, the plumbing work on the pool and twenty shower baths being in the hands of G. & E. Blake, of St. John. A filtration system has been installed in the Y. M. C. A. pool by David Peer, of St. John, plumbing contractor. Mr. Peer did the work without previous experience, the directions being terse and explicit. A pool will be constructed in the St. Peter's School, St. John, some time in the future, this building having

recently been opened. R. Chestnut and Sons, Limited, of Fredericton, N. B., installed the plumbing and heating, including ten shower baths.

There is ample opportunity for plumbing contractors to profit materially by instituting a campaign in the maritime provinces looking to the building of swimming pools and installations of filtration systems. The city fathers of the maritime cities and towns have been strangely deaf to this angle of health preservation and cleanliness, as well as conservation of life.

By pointing out the immense advantages of swimming pools and the inadvisability of constructing pools without filtering systems in conjunction, plumbing contractors would kill two birds with one missile. There would be the question of taking the leadership in a worthy cause, and secondly, the question of profit. Each city and town has immense possibilities in this connection, Canada being singularly backward in the matter of swimming pools, indoor and outdoor.

APPOINT NEW TOWN ENGINEER

Port Hope, Ont.—Oliver L. Flanagan, of Toronto, has been appointed town engineer at a salary of \$2 400.

Need for Keeping Close Watch on Credits in Plumbing and Heating Business

Some Valuable Hints Passed Along to Plumbers—A Vital Factor in Business for Keeping it in Liquid Condition—Compromises Often Create Unfair Competition

By J. B. RATCLIFFE

"IF A MAN has once had his chance in a certain line of business and proves incompetent, he should not be allowed to go back again," stated J. B. Ratcliffe, in an address on "Credit." "It was considered better for all concerned that he stay out of business if he has once exhibited, or demonstrated, his incompetence. However, this is a situation which is impossible to control. As there are new suppliers going into business all the time, and moreover, there is no law to keep a man out of active participation in any line of commercial activity."

Continuing to refer to this vital subject, Mr. Ratcliffe stated that 38 per cent. of business failures are due to incompetence.

Largest Credits in History

That credit occupied a most important part in the affairs of the world to-day, was illustrated by the speaker in citing pertinent examples. The French were occupying the Ruhr district on account of the German credit situation. The strained relations between Great Britain and Turkey were primarily caused by the same reason. "Credit is the most discussed question in the world to-day, as well as the most important. The amount represented by the word Credit, is also the largest in the history of the world; billions of credit being as common to-day as millions were a few years ago.

"The chief factor on which credit is based as between nations, is the ability to pay by exports. An illustration of this was the fact that the pound Sterling rose during the past year from \$4.20 to \$4.80, while the Canadian dollar as valued in New York rose from a discount of 15 to 18 per cent., to par; but the total wealth of these countries did not increase, it probably decreased through deflation in values. On the other hand, in mercantile credits, the chief factor is surplus wealth; not the assets shown on the balance sheet. We often find that these will shrink, especially at creditor's meetings.

Aids for Rough Times

"In analyzing the balance sheet, the first point is, has stock been figured at the replacement value? Then there should be a proper reserve for accounts and bills receivable. Real estate was considered as a liability, except that being used in the business. Another point to be carefully weighed was, how do liabilities compare with the value of the stock?"

The speaker also pointed out that a large liability to the bank was generally undesirable as the bank may clamp down the lid pretty tightly in this respect at any time. On the other hand a liability with suppliers was more likely to be of assistance in tiding the business man over the rough spots.

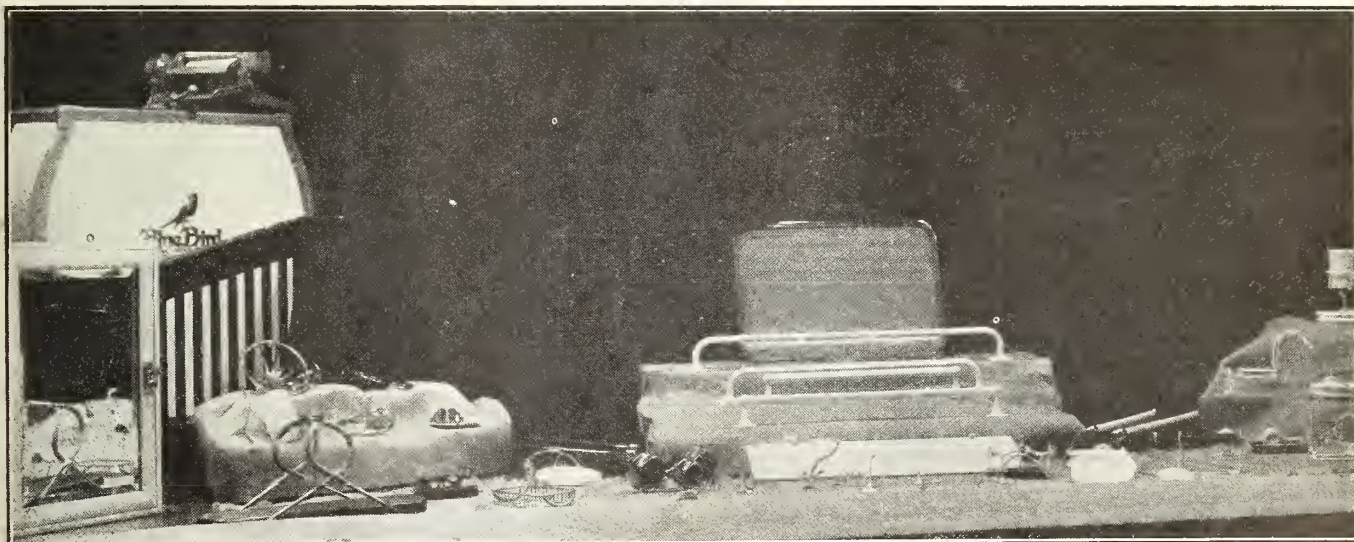
"Other factors to be considered from a credit man's viewpoint were, (1) character, on which some place a good deal more reliance than capital (2) business ability, which is risky unless character is O.K., (3) intuition, or common sense on the part of the credit man, and (4) local laws, are of more or less importance, as in some cases specialized legislation has tended to foster carelessness and indifference on the part of the debtor.

"There are some merchants who send to credit men a copy of their financial statements, and this practice is becoming more general, but they usually come from the ones who need to follow this idea the least. Credit men would be well advised to insist upon financial statements if accommodation is desired and the amount is of any moment."

Mr. Ratcliffe stated that the collecting of accounts was a very interesting game; a matching of wits, in trying to find out the way to make the debtor pay and feel good about it and still want to buy your goods. "What credit man," he stated, "does not know all the various tricks and schemes resorted to by those who wish to gain time, or otherwise take advantage of the situation?"

Special attention was paid by the speaker to the debtor who doesn't pay in full, who asks a compromise.

(Continued on page 19)



Cool displays will attract most attention in the hot weather. Hence such displays as this have pulled good mid-summer results in the sale of bathroom accessories. Such sales have brought many good prospects for larger installations of both plumbing and heating equipment too. In this way the summer doldrums can be chased away and the hot months turned to good advantage.

Stimulating Mid-Summer Business



Good plumbing

deserves good care. Nothing else in the home is as essential or used as much by as many different persons. Do not drop paper, string, hair or pins into the fixtures. Flush your sink with ten gallons of hot water once a week. If good care does not keep your plumbing in good condition—it is not good plumbing; and we can replace it, inexpensively, to your advantage.

YOUR NAME HERE

Phone No. Address

Plumbing repair insurance

Plumbing fixtures with brass water supply pipes, never become streaked with rust. Brass pipe is rust-proof—which ordinarily means repair-proof.

It costs but a little more, but lasts a lifetime. It is best for water supply systems of every nature.

YOUR NAME HERE

Phone No. Address

How to Order Advertising Material

Advertisements in each issue will form a complete month to month advertising campaign for your use.

These are only a few of the electros available in this service. Complete catalog of all illustrations available to date will be mailed on request.

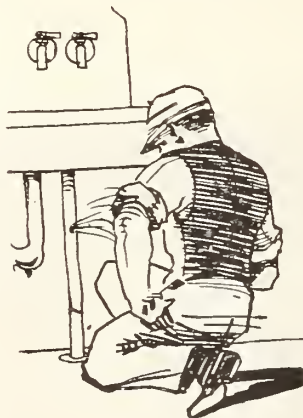
The catalog gives serial numbers on each illustration and the price is quoted.

Prices range from 30 cents to \$1.00 for electros, according to size.

In ordering from catalog write plainly the serial number of the illustration and send remittance to cover the order in order to save cost by avoiding book-keeping expense.

By Courtesy, National Trade Extension Bureau

Don't Neglect Repairs



Repairs to plumbing should never be neglected. We know how costly the results of such neglect can easily be. That is why our "trouble-hunting" repairmen are so promptly on the job after you phone for them. Charges always moderate; workmanship and materials guaranteed.

YOUR NAME HERE

Phone No. Address



A Word to the Wives

If farm housewives knew how much of their weariness and backache from pumping and carrying water could be prevented, there would be fewer farms without a (...) Farm Water System.

Wash-day on the farm is a serious occasion for the woman who must pump and carry all the water that is used. It means that a woman ends the day worn out and exhausted.

It is only common humanity to do your part to put a stop to it. Find out from us the other advantages of a (...) Farm Water System. Time payments, if you want them.

YOUR NAME HERE

Phone No. Address

Running Water on Farm and Early Fall Heating Featured in Display

Big Possibilities in Both These Fields of Business—Economical Heating Plants for Small Homes

RUNNING WATER ON THE FARM

NO. 119. "The Mysterious Fountain." Where does the water come from? Here is a display that will attract a good deal of attention by creating a desire in the mind of the passerby to know just how it operates and where the water really comes from, and by so doing arouses an interest in the farm water system, which occupies the back ground of the window.

This background is simple, yet attractive. Cover the back of your window with some sort of deep yellow cloth—draped to hang in loose folds. About four feet in front of this, drape heavy black cloth so as to secure the curtain effect, as in illustration. Place a farm water system in the center of the space between curtains, on a box about fifteen inches in height as illustrated; and you have your background. Several lights, behind the curtain, reflecting on system, will help the lighting effect.

The mysterious fountain is easily constructed. All you need is a bucket, a water gauge glass, and a faucet. Any style faucet will do. Suspend the faucet in mid air by some very fine wire. Place the bucket directly beneath it. Now place two strips of wood inside the

bucket so they will fit cross ways, bore a hole the size of the gauge glass one over the other in each strip. Place the gauge glass through the two holes in an upright position with one end in the faucet out of sight and the other end in the bucket out of sight from the street. Your water supply and waste can be brought up through the bottom of the bucket. Connect the supply to the end of the water glass and turn on the water. Be sure you have enough force on the supply and enough clearance between glass and faucet so that when water passes up through the glass into the faucet, and then falls back down on the outside it hides the glass. Plug regular supply end of faucet to prevent water from running out that way.

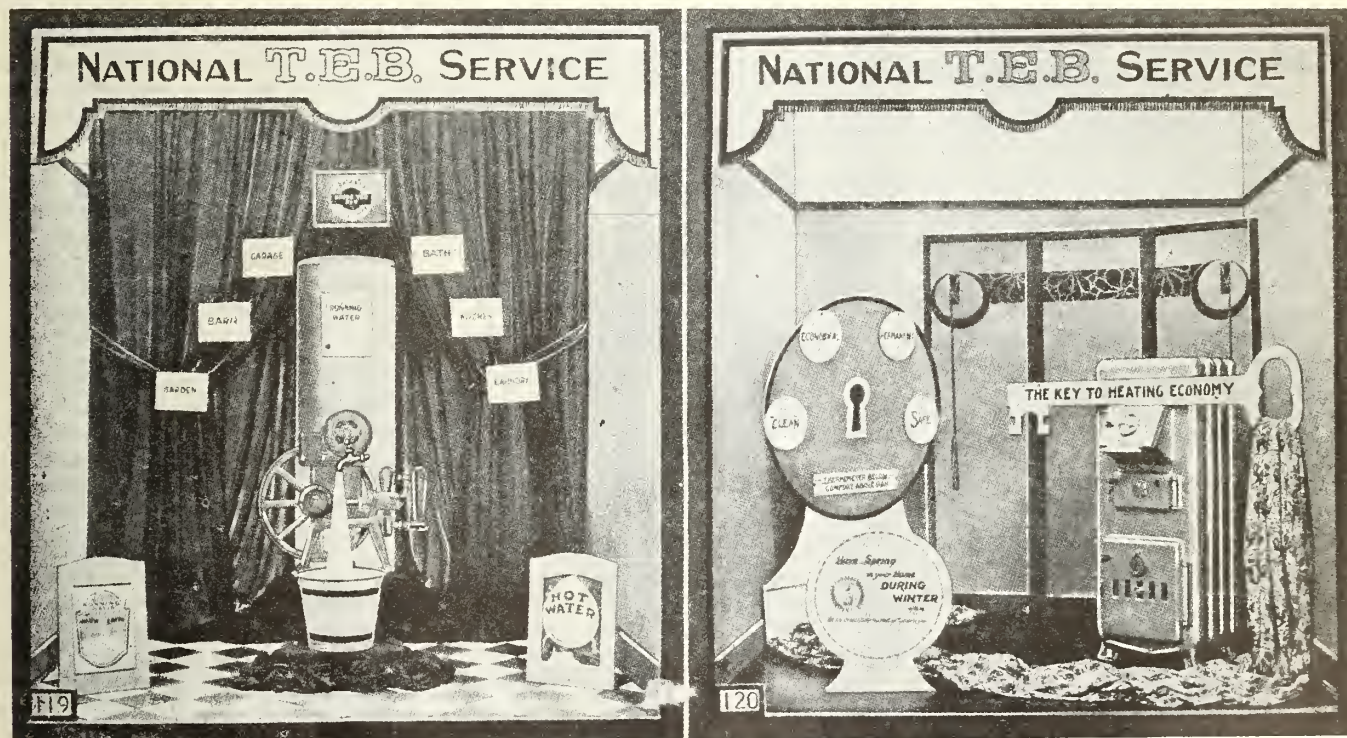
The cards for this display read as follows: Running Water Like Magic for the (Bath) — (Kitchen) — (Laundry) — (Garden)—(Barn)—(Garage).

ECONOMICAL HEATING PLANT FOR SMALL HOMES

NOW is the time to prepare for the fall heating rush. Display No. 120 will give you an idea as to a way of securing prospects for small heating plants. It is very simple in

construction and still puts over one big idea for an economical way of heating small homes. Place your heating plant in the window at about the same angle as the one in the illustration. Then take a strip of beaver board four feet long and twelve inches wide; cut a large key out of it, and have your sign writer letter this phrase on it: "THE KEY TO HEATING ECONOMY." Now cut a circular piece of beaver board about thirty inches in diameter, paint a key hole in the center large enough for the key to fit in. Fasten the key to the heating plant, pointing towards the key hole as in the illustration. Paste the show cards around the key hole as illustrated, and the display is finished. If you desire a more pleasing effect purchase six yards of cretonne from the department store and drape it through the key as shown above.

The cards around the key hole read as follows: "ECONOMICAL," "CLEAN," "PERMANENT" and "SAFE." The narrow card at the bottom reads thus: "OUTSIDE TEMPERATURE BELOW—INSIDE TEMPERATURE ABOVE—PAR." The large card on the floor reads as follows: "HAVE SPRING IN YOUR HOME DURING WINTER—ORDER YOUR HEATING SYSTEM NOW BEFORE THE FALL RUSH."



TWO ATTRACTIVE WINDOW DISPLAYS

Suggested window displays for plumbers and heating engineers, dealing with two seasonable subjects.

Want Receipt and Bank Cheque Taxes Off

Dominion Board of the Retail Merchants' Association in its Annual Convention at Montreal Last Week Express Themselves as Opposed to Both These Taxes and Would Like to See Them Entirely Removed—Every Province is Represented

By special staff correspondent of Sanitary Engineer

REMOVAL of receipt tax and bank cheque tax is aimed at in an important resolution passed at the 18th annual convention of the Dominion Executive Council and Dominion Board of the Retail Merchants' Association of Canada, held in Montreal last week. The opinion of the convention was that notwithstanding that some reduction has been made by the Government in the maximum tax on bank cheques, in view of the increase in the amount of the sales tax the other two taxes should be removed entirely as the present system discriminates unfairly against the average citizen and merchant. The members of the Council are urged to do everything within their power to have these taxes removed.

In the three days' session of the convention an unusually large amount of business connected with the work of the Association was transacted, some idea of the wide scope of the organization being gleaned from the President J. A. Banfield's address on the activities of the past year. In this he referred to the unfortunate litigation which the Association had been compelled to carry on for the protection of its members because the amendments to the Special War Revenue Act passed at the 1922 session of the Federal House were clothed in language which was ambiguous, and lent itself to departmental rulings which conflicted with the spirit of the Act and compelled large numbers of retailers to take out manufacturers' licenses and pay taxes out of all proportion to their business. Out of thirty cases taken before the courts no two judgments were rendered alike, which fact proved the Association's contention that if legislation of this character affecting practical retail merchandising, was passed, the Association should be given the opportunity to explain its practical effects upon business in order that annoyance and confusion might be eliminated.

Gaining in Prestige

Referring to the growth of the Association and the fact that it had now reached its 27th year, and was thoroughly representative of every line of retail trade in Canada, the president congratulated the convention upon the measures of prestige which the Association now enjoyed both before the public and Legislative Assemblies. Pointing out that the Association's work was increasing in the Legislative field the President recommended the creation of legislative committees of As-



GEORGE S. HOUGHAM

Who has been appointed special Dominion representative in the Retail Merchants' Association.

sociation members throughout Canada whose function would be to keep members of the Federal House in their respective constituencies informed upon legislation in which the retailers were directly interested. In emphasizing the necessity for the creation of such a

OFFICERS ELECTED FOR DOM. BOARD 1923-24

Election of officers for the coming year resulted as follows:

Re-elected as President—J. A. Banfield, Winnipeg.

By acclamation, First Vice-Pres.—J. G. Watson, Montreal.

Second Vice-Pres.—J. T. Crowder, Vancouver.

Third Vice-Pres.—S. E. Fawcett, Saskatoon.

Fourth Vice-Pres.—W. G. DeWolfe, St. Stephen, N.B.

Fifth Vice-Pres.—W. J. Hopgood, Halifax.

Sixth Vice-Pres.—N. T. McDermid, Calgary.

Seventh Vice-Pres.—J. P. Gordon, Charlottetown, P.E.I.

Treasurer—Henry Watters, Ottawa.

Dominion Secretary—E. M. Trowern, Ottawa.

committee the President here took occasion to express his conviction that retailers should take an active interest in local, Provincial and Federal public affairs.

Quebec Retailers Joining

The numerical strength of the Association as shown in the report of Dominion Secretary, E. M. Trowern, indicated a large increase in Quebec with conditions about stationary in the other provinces. Nineteen thousand letters went out of the Dominion office, which together with trade bulletins and questionnaires upon over fifty different subjects, amounted to a total mail output of fifty thousand pieces. Reference was made to the unique plan of organization under which the R.M.A. of Canada operated, the point being brought out that inquiries from other trade organizations both in Canada and other countries had been received through the mail and by personal representation. During the year the executive offices of the National Shoe Retailers' Association decided to unite with the R.M.A. of Canada becoming a trade section thereof.

Secretary's Report

The secretary's report was largely a review of recent legislation of interest to the retail trade and referred particularly to the sales tax act, the stamp tax on receipts, and legislation having for its object the restriction of trade combines. With special reference to the Sales Tax Act the secretary stated that the special committee representing a number of trade sections as well as members of the Dominion Executive Council waited upon the Board of Customs and strongly presented to them the necessity for placing the tax upon the article at the point of manufacture or importation instead of at the point of distribution and made a number of other suggestions which received the favorable consideration of the Board, the association having the satisfaction of having many of the recommendations adopted and embodied in the present Act which will come into effect January 1, 1924. There were still some clauses in the Act, however, which are not clear and the association is now directing its attention to having such points cleared up, and as soon as an understanding has been reached with the Government upon these matters a bulletin will be prepared and sent out to all members.

Partially Successful

Referring to the association's objection to the stamp tax the secretary expressed regret that our representations

had only been partially successful. One point, however, has been conceded which is, that in future only Inland Revenue Stamps will be accepted on cheques and drafts—which means that Post Office receipts from the sale of postage stamps will not be artificially inflated as they have been in the past. The association has also been successful in having the statistics compiled and issued covering the cost of living in Canada, under the direction of the Department of Trade and Commerce, which department was co-operating with the Head Office in Ottawa with a view to securing reliable information from competent and responsible sources.

The secretary's report stated that a special classification committee appointed to consider and revise proposed Canadian freight classification No. 17 had favorably considered the objections raised by the Association's representation on this committee to the proposal to increase minimum carload rates which would have increased the cost of retail consignees.

Claim Not Practicable

Referring to a resolution passed at the previous convention requiring an amendment to the Income Tax Act permitting subscriptions and donations to be charged against the profits of a business the secretary reported that the department had pointed out that such an amendment was not practicable because an individual working on salary is not permitted to charge up his donations as a deductible exemption from his assessment, and that therefore could not claim a privilege which could not be extended to an individual.

Stopped Speculative Systems

A comprehensive report was submitted by the secretary which was in effect a review of legislation over a period of 35 years beginning with Section 498 of the Criminal Code and ending with the appeal of the Association to the Privy Council in the matter of the injunction issued against the late Board of Commerce to prohibit it from fixing prices. The report covered broad and complicated questions of trading policy and the statement made by the secretary that the successful appeal to the Privy Council had resulted in freeing the retail trade of Canada from irritative and confusing legislation leaving the organization in a position to work out a trading policy as between manufacturers, wholesalers, retailers and consumers, equitable to all parties concerned was received with enthusiasm by the Convention.

Co-operate With Women's Council

A special report was also submitted covering negotiations between the Women's Economic Department of the National Council of Women which negotiations have resulted in a plan of co-operation being evolved under which the Women's Economic Department will be able to co-operate with committees of the association throughout Canada upon such subjects as false representation of

goods as to price and quality, the character of advertising in the press, adulteration of food stuffs, qualities of meats offered for sale, the difference between pure woollen goods and woollen mixtures, between properly and improperly prepared pharmaceutical prescriptions, real and imitation leather, jewellery, etc., etc. It was a subject for gratification said the secretary that the Council of Women had appealed to the R.M.A. for co-operation in these matters on the ground that they understood that the objects of the association were to advocate honest goods and honest methods of trading.

Those Present

The accredited delegates were as follows: J. A. Banfield, Dominion President, Winnipeg; J. T. Crowder, Vice-President, Vancouver; N. T. McDermid, Vice-President, Calgary; S. E. Fawcett, Vice-President, Saskatoon; J. G. Watson, Vice-President, Montreal; W. G. De Wolfe, Vice-President, St. Stephen, N.B.; W. J. Hopgood, Vice-President Halifax, N.S.; W. A. Stewart, Vice-President, Charlottetown, P.E.I.; E. M. Trowern, Dominion Secretary, Ottawa; Henry Watters, Dominion Treasurer, Ottawa; J. E. Sansregret, President, Quebec Provincial Board, and W. Lapoint, Secretary, Quebec Provincial Board; A. E. Everett, St. John, N.B.; A. A. McIntyre, St. John, N.B.; A. J. Reid, Shenacadie, N.S.; J. R. Dixon, Ottawa, Ont.; B. W. Zieman, Preston, Ont.; W. P. McCulley, Stratford, Ont.; D. W. Clarke, Toronto, Ont.; C. F. McArthur, Russel, Ont.; C. H. Chandler, Charlottetown, P.E.I.; J. Filiatranet, Montreal; Joseph Elie, Montreal; E. Saurie, Montreal; J. F. Grant, New Glasgow, N.S.; G. E. Hughes, Charlottetown, N.S.; J. A. Trudeau, Sherbrooke, Que.

Provincial Secretaries present were W. C. Miller, Toronto, Ont.; Miss F. P. Alward, St. John, N.B.; J. C. Doyle, Halifax, N.S.; B. R. Halmon, Charlottetown, P.E.I.; W. L. McQuarrie, Saskatoon, Sask.; M. J. Lapointe, Montreal, Que., and Geo. S. Hougham, formerly secretary for British Columbia and now special representative for the Dominion Board.

Passing of Resolutions

A large number of resolutions were passed by the Dominion executive, including many that have already been referred to in the columns of this paper. These resolutions were covered in the reports of the various Provincial associations, and were given their final endorsement at this convention.

The Manitoba Association presented a resolution to the effect that whereas freight classifications are changed from time to time by classification committees and whereas these classification committees consist of representatives of the Canadian Manufacturers' Association and Board of Trade and whereas the retail trade is not represented on these committees, therefore be it resolved that the Dominion Executive Council take whatever steps are necessary to secure representation on these classification Committees so that the interests of the

retail trade will be properly protected throughout Canada.

The Meaning of Profits

Another resolution dealt with the meaning of profits made by retailers. Because of the practice of designating as profit the margin the dealer gets, it was pointed out, and whereas profit is the excess of the price received over the cost of purchasing and handling or of producing and marketing goods, and margin is the difference between the cost and selling price of an article taken as that from which expenses be met, profit derived, etc., it was urged that manufacturers, wholesalers and retailers use these terms only in the sense that they have thus been defined and especially that in advertising literature sent to retailers the word margin be used instead of profit and percentages of margin be figured on the selling price instead of the cost price.

In view of the fact that the railway commission approved of advances in express rates during the war, upon the understanding that same would be reduced when the war was over and as no such reduction has been made, the Executive Council was requested to take up this matter with a view to securing a satisfactory reduction in rates.

Finishing Photographs

Other resolutions passed were:—

Whereas we are of the opinion that the finishing of photographs should not be considered as manufacturing. We recommend that the Association be requested to take up the question of the removal of the sales tax as applied to the finishing of photographs. In view of the fact that many are not paying the taxes and because there is doubt regarding the liability of such dealers to such a tax and further because of the tax having already been paid on the films and photographic paper.

That this Convention expresses its satisfaction at the change made by the Federal Government in the form of the one cent copper piece but also expresses the opinion that the new five cent piece should be withdrawn from circulation and be replaced by the old Canadian nickel.

That it is the opinion of this Convention that when retail merchants or other persons invest their money in wholesale businesses and conduct them on legitimate wholesale lines that the manufacturers should recognize and deal with them on a wholesale basis.

Whereas many overcharges for freight are due to expense bills showing a greater than the actual weight of shipments, therefore be it resolved that manufacturers and wholesalers be requested to co-operate by marking the weight on individual packages and boxes when goods are being weighed out for shipment and that the Dominion Executive Council be requested to take action with this object in view.

The Convention commended the Government upon the passage of the Chinese exclusive act and recommended

(Continued on page 27)

Tinsmithing and Sheet Metal Work

Pattern for Furnace Boot Used Where Round Leaders are Transformed to Connect with Wall Stacks

Shows How Boots Around Ceiling Beams or Parts of Foundations Encountered are Formed

Written for Sanitary Engineer by O. W. KOTHE, Principal, St. Louis Technical Institute

IN INSTALLATIONS of furnaces, a great variety of fittings are used, and especially where the round leaders are transformed to connect with the wall stacks. This is especially so where ceiling beams or parts of foundations are met with, and peculiar off-sets must be developed. The main idea is to design these boots so that they will have a gradual flow of air, producing no back pressure and doing away with all the friction possible.

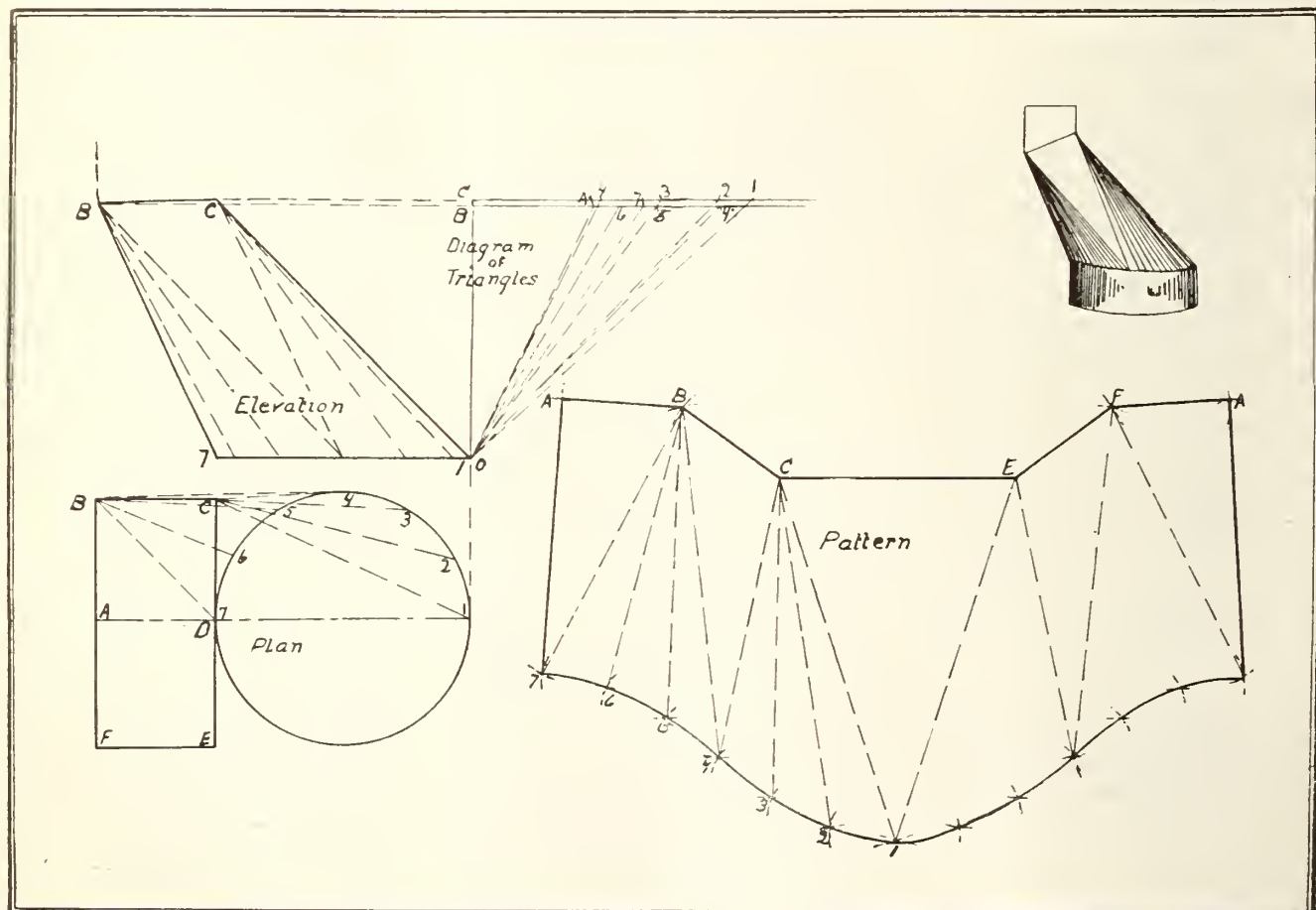
In this case we first draw the elevation setting the square a rectangular base in this position, and giving the round base its proper position, after which the outlines are connected. Very often a miter line is developed in the

rectangular part as at B and C as in this case. Other times this line is left parallel with the base, which makes it a little easier for developing. From points B-C and from 7-1 we drop lines across the center line of plan and thereby draw the circle and the rectangle to represent the size of pipes we will use. Divide the circle of plan in any number of equal spaces, and then draw lines to the corners B and C as shown. These triangular lines can also be erected into elevation, but are not exactly needed, since they only show the position of the lines on the surface of the fitting.

To set out the true lengths, draw any line as C'-O and with dividers pick the

lines from plan as C-1; C-2; C-3; C-4, and set as C'-1-2-3-4 in diagram. Next from point D of elevation, project over a line as shown. After this pick the lines B-4; B-5; B-6; B-7 and set at B-4-5-6-7 in diagram. Also pick the seam line 7-D of plan and set as B-A in diagram. To set off the pattern, draw a line as C-E equal to C-E of plan, and then use true length O-1 and using C and E in pattern as center, strike and cross arcs in point 1. Next pick one of the spaces as 1-2 from plan and using point 1 in pattern as center, strike a small arc as at 2. Then pick true length O-2 and using C and E as center, cross arcs in point 2. Next pick space 2-3 from plan and strike arcs 3 in pattern, and cross this arc with line O-3 of diagram. Repeat this and establish point 4 in pattern. Then pick the miter line B-C of elevation, and using C and E as centers, strike arcs as at B and E. Then pick true length O-4' from diagram and using points 4 in pattern as center, cross arcs in point B and F.

From here on, use B and F in pattern as centers, and continue the development until points 7 are established. Next pick half the width as A-D from plan and using B and F as centers,



strike arcs as at A. Then pick the seam line O-A from diagram, which is the same as B-7 from elevation, and using point 7 in pattern as center, cross arcs in point A. Join all the points where arcs cross with lines, allow edges for seaming, and the pattern is finished.

NEED FOR KEEPING CLOSE WATCH ON CREDITS

(Continued from page 13)

"A lot of this is being done nowadays, and much of it is unnecessary," he claimed. "It seems to have been added to the list of 'get-rich-quick' schemes by some. Unfair competition to the other merchants carrying on an honest endeavor in that particular line of business is caused by stock which is bought in at 30 or 40 cents on the dollar. This is a very live subject among retailers at the present time. Composition settlements should not be accepted, except for good reasons, and when there are good prospects that the account can be saved to the trade.

"A noted exporter of goods said recently that, 'No one was safe to sell to.' This statement, however, is overdrawn, but it is nevertheless a fact that many old and supposedly sound firms have been in difficulties during recent months because they were unable to stand the double strain of deflation and frozen credits.

"Failures in Canada last year totalled 3,695, or approximately twelve every working day. The total liabilities of these business firms was around \$78,000,000. This entails a loss averaging seventy cents on the dollar, or \$54,600,000 lost to suppliers in this Dominion during one year. This condition can be improved to some extent by credit men, but, of course, can never be entirely overcome.

"Babson says: 'Different departments should guide or control the business at different stages in the business cycle. The purchasing department should be in control on a rising market. The sales department should come to the fore when prices are at the top. The work of the credit department comes in when a slump in trade is apparent. Then is the time for sane credit, not wholesale collections regardless of where or how it is done.

"Judicious use of credit is more necessary and skilful supervision is more essential on account of present-day business methods. Business institutions are anxious to keep up the volume of sales. Merchants doing a credit business are anxious to make sales. The work of the credit man comes in here, in watching new accounts and not overlooking old ones. Don't sacrifice safety for volume. Keep the eyes on bad debts, rather than concentrating entirely on sales-volume. And above all forget the

big years of 1919-20. They were abnormal times. Volumes to-day should find comparison with 1915-16, as these represented more average conditions.

"We must adjust our ideas to more normal conditions," claimed Mr. Ratcliffe, "as our businesses are being adjusted in spite of ourselves."

Simplification of Registers, Furnace Pipes and Fittings Recommended

Resolutions Adopted at Convention of Sheet Metal Contractors and Warm Air Heating and Ventilating of Interest to Sheet Metal Workers

DECIDED progress in standardization of registers and furnace pipe and fittings was made at the joint meeting of the National Association of Sheet Metal Contractors, the National Warm-Air Heating & Ventilating Association and the Western Warm-Air Furnace & Supply Association. The sentiment of the meeting was of an exceptionally high order and it was emphasized that standardization is being adopted for the good of everyone all along the line, from manufacturer to the ultimate user. This commendable work is in sympathy with the definite progress being made under the inspiration of Herbert Hoover, secretary of commerce, so that to-day the furnace and sheet metal industry takes a place among the ninety odd industries that are going ahead in the simplification of sizes and shapes of commodities.

The following resolutions were adopted:

Resolutions Adopted

For sidewall registers:

That register box openings be at least of equal capacity to the leader pipe serving it.

That 8 x 10-in. registers have a throat $6\frac{1}{4}$ x 10% in. outside measurement, with a $2\frac{1}{4}$ -in. base extension.

That 9 x 12-in. registers have a throat of $6\frac{1}{4}$ x 12% in. outside measurement, with a $2\frac{1}{4}$ -in. base extension.

That 10-in. leader pipes have a 10 x 13 in. register having a throat $6\frac{1}{4}$ x 13% in. outside measurement and a $2\frac{1}{4}$ -in. base extension.

That 12-in. leader pipes have a 12 x 14-in. register, having a throat of $8\frac{1}{4}$ x 14% in. outside measurement and a $4\frac{1}{4}$ -in. base extension.

In connection with the above, a recommendation was adopted that 11 x 13-in. registers also be made for 12-in. pipes as optional for installations where a 10-in. leader is too small and a 12-in. pipe too large for the room requirements, under which condition an 11 x 13-in. register will serve the purpose.

That 14-in. pipes have 16 x 14-in. registers with a throat of $11\frac{1}{4}$ x 14% in. outside dimensions and a base extension of 8 in.

That registers of the same base extension shall be used, in corresponding sizes, for both first and second floors.

That a height of $2\frac{1}{4}$ in. from the floor line to the opening be recommended to register manufacturers as a standard measurement for roughing in sidewall registers.

A resolution was also adopted that furnace pipe manufacturers make only one size collar for the boot for which it is intended, viz.: 8-in. collars for 8 x 10-in. registers; 9-in. collars for 9 x 12-in. registers; 10-in. collars for 10 x 13-in. registers; 12-in. collars for 12 x 14-in. registers.

The meeting also went on record adopting a standard of one size larger over the single head for collars on boots for double head registers.

The following sizes for floor registers were adopted as standard:

8-in. pipe: 8 x 10-in. register.

9-in. pipe: 9 x 12-in. register.

10-in. pipe: 10 x 12-in. register.

12-in. pipe: 12 x 14-in. register.

14-in. pipe: 14 x 16-in. register.

16-in. pipe: 16 x 20-in. register.

This recommendation for floor register sizes carries with it the pipe sizes given with them.

A resolution was adopted that the foregoing recommendations be sent to register and furnace pipe manufacturers throughout the country for their approval and acceptance, and that a further meeting be held with such manufacturers, Tuesday, September 4.

SAYS TRADE BENEFITS BY "SANITARY ENGINEER"

"I believe anyone connected with the plumbing trade will derive a great deal of benefit from Sanitary Engineer."

"I am a comparatively new subscriber but I have found some very interesting items in the various numbers, particularly in the departments devoted to practical work. The market reports are very helpful also."

(Signed) Chas. W. Mullett,

Bancroft, Ont.

Heating and Ventilating Department

Heating and Ventilating Systems in Some Large Schools

Plenum System with Direct Radiation Only in Offices, Corridors, Shops or Special Rooms—Class Room Exhaust System—Calculating Heating and Ventilating Requirements

By JOHN HOWATT, Chief Engineer Chicago Department of Education

(Continued from last issue)

THE system described provides no place for dust or dirt to settle; air is delivered into the class rooms just as it leaves the air washer; the system is very flexible, making each group of three class rooms practically a separate unit; is adjustable to meet wind and weather conditions; adjustable for a partial use of the building and the resistance through the duct system being so very low it is found a considerable air circulation is obtained in the rooms even when fans are not in operation.

Class-Room Exhaust System

The plan used in exhausting the air from the class-rooms in the elementary schools in Chicago differs slightly from that most generally used. Cloak rooms are no longer provided. In lieu of cloak rooms, a wardrobe space about 30 in. in depth is provided along the corridor wall of each class-room. In front of this wardrobe space, sliding hyloplate blackboards are provided which are counter-balanced so they may be raised and lowered like a window sash, and when lowered, which is the normal position, drop to within 4 in. of the floor. A vent register is placed in the upper part of each wardrobe space and a duct extended to the attic and there connected to the main ventilators. The exhaust air is thus exhausted from the class rooms through a slot at the floor 4 in. in width, extending along about one-half the length of the room. This arrangement is sanitary, makes for a good distribution of air in the room, and carries all odors from coats and other clothing hung in the wardrobe directly out to the attic vents.

Wherever possible the air inlet to the class-room is located at the opposite end of the wall from the door and in the incoming air is directed across the room against the windows and about 8½ ft. above the floor line. This is found to be the proper location for this air inlet to avoid short-circuiting of the air out through the class-room door whenever it is open, and to avoid drafts on the teacher's head.

In the calculation of requirements for the heating and ventilation systems of

the Chicago public schools, the quantities of air required for class-rooms, lecture-rooms and study-rooms are based upon the traditional supply of 1,800 cu. ft. per hour per seat; assembly halls, 1,500 cu. ft., and other rooms, such as offices, dining rooms, and libraries, are calculated for a 10-min. air change; corridors a 20-min. air change; gymnasias, because of their large volume compared with the number of occupants, a 20-min. air change, and laboratories an 8-min. air change. The total air quantities thus found as used in a rough determination of the pounds of steam which will be condensed in heating the air from an outdoor temperature of minus 10 deg., to a final plenum-chamber temperature of 130 deg., it having been found by experience that with the construction and design of school buildings such as is practiced in Chicago, the quantities of air named will furnish sufficient heat to the rooms to maintain a temperature of 70 deg. indoors with an outdoor temperature of minus 10 deg., when the final maximum temperature beyond the reheaters is 130 deg. Repeated air-loss check and actual practice shows that this temperature will care for the heating requirements of an ordinary class-room.

The assembly hall is usually ventilated by a separate unit consisting of a motor-driven fan and draw through heater proportioned for a final temperature of 100 deg., the air entering through mushroom ventilators under the seats. Assembly halls are usually centrally located in the building and do not have the same proportion of exposure as the class-rooms, so the final plenum chamber temperature does not have to be as high as the plenum chamber temperature for class-room work.

Rooms that have an unusual exposure are provided with supplemental direct radiation. Rooms that it is expected will be used after the regular school hours are supplied with direct radiation for heating after the fan engines are shut down. Direct radiation is also provided in vestibules and first-floor corridors, and in other locations where cold outside drafts may enter.

Air washers are used on class-room fans wherever the buildings are located in a district in which smoke or dust may be a nuisance and in every instance the new designs provide space so that air washers may be installed later if found necessary. Every building is equipped with humidifying apparatus consisting of steam-jet humidifiers controlled by automatically-operated humidostats.

The usual tempering heater units consists of Ventos figured for an air velocity of 1,000 ft. per minute through the stacks. In the design of the sub-corridor systems reheaters are arranged for an air velocity through them of 600 ft. per minute. The boiler plants are operated at about 100 lbs. gauge steam pressure, but engines driving the blows are designed to operate the blowers at full speed at any steam pressure between 50 and 100 lbs. with 5 lbs. back pressure on the engines. The engines driving the blowers are designed to operate the blowers at full speed at any steam pressure between 50 and 100 lbs. with 5 lbs. back pressure on the engines. The engines exhaust through oil separators into the heat mains, the additional steam required for heating the building being supplied from high-pressure lines through reducing valves.

Each Fan Chamber Treated as a Unit

In general each fan chamber is treated as a unit, having its individual steam-supply lines from the boiler, return lines to the pump, pressure reducing valve and vapor lines to the roof. The room temperatures are maintained constant by automatic thermostats located in the rooms acting on double mixing dampers at the plenum chamber. Tempered air is automatically controlled by by-pass dampers located under the tempering stacks. No automatically controlled steam valves are used except on the humidifiers which are controlled by humidostats located in some typical room.

The rules of the board require class-rooms to be kept at temperatures between 67 deg. and 70 deg with a relative humidity of 40 per cent., and apparatus is adjusted to control air conditions within this range. This temperature and humidity were established from a consideration of comfort rather than a consideration of health.

Determining Boiler Capacity

When the total steam requirements are known from the above calculations, allowing two air changes per hour for leakage and after adjustment to unusual conditions that may exist in different parts of the building, the boiler capacity is found by estimating 4 lbs. of steam

evaporated per square foot of boiler heating surface per hour. This provides a rough check as to the number of square feet of heating surface required in the boiler plant, and boilers selected accordingly. Whenever a building is designed which is radically different from others, or a room has an unusual location of exposure, the heat loss calculations are carefully made in accordance with the usual system of heat loss calculation methods to determine whether the air required for ventilation will meet the requirements for heating. It has been found, however, that theoretical calculations of heat losses, while useful in the preliminary studies must be checked against practical results our extensive experience has taught us to expect.

The Draft Problem

One of the most aggravating features with which those in charge of the operation of plants have to contend is the question of draft. An ample draft properly controlled is the best fuel economizer that can be provided. This feature was not given proper consideration in past years in Chicago with the result that the draft in many of the older buildings is quite inadequate. Of late years, however, we have been fortunate in having had the co-operation of the Smoke Department in this matter, so we now have established a minimum stack height from the boiler room floor to the top of 115 ft. It is found that this provides ample draft for an ordinary horizontal-return-tubular boiler plant and with the proper damper control will make it possible to regulate the combustion of almost any grade of fuel that must be burned in this district.

Plant Operation Costs

The cost of plant operation has received the attention of trustees since the war, because it has become too large an item in the annual budget. It requires approximately 150,000 tons of coal to heat and ventilate the school buildings in Chicago each year. The maintained high price of fuel makes it of very great importance that economies in its consumption be practised wherever they can be practised without injury to the school system. Twelve million cubic feet of air are drawn from outdoors through the fan systems in the school buildings every minute, and are heated and delivered into the rooms, maintaining the temperature at about 70 deg. The average outdoor temperature in Chicago during the heating season is approximately 35 deg. When all of the air delivered into the rooms is exhausted through the vent flues to the roof, all of the fuel required to heat the air from outdoor temperature to 70 deg. is wasted, which in a climate such as is found in Chicago amounts to considerable.

Up to this time the Board of Education has in general been opposed to recirculating the air from the class-rooms, believing that it is safer from a health

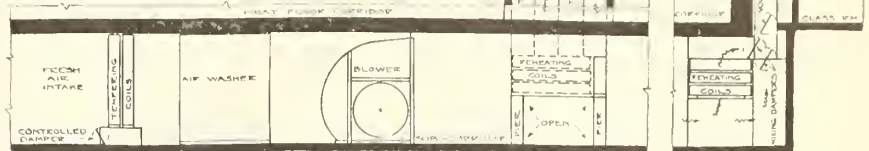
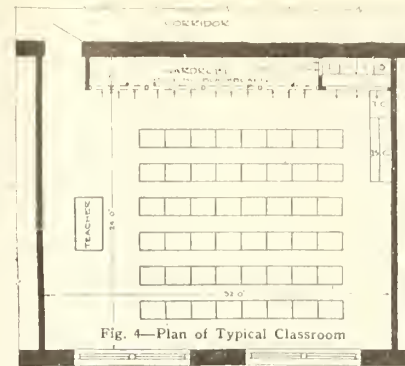


Fig. 3—Typical Sections Through Corridors.

standpoint to draw in fresh air, heat and deliver it to the rooms and discharge it directly out of doors. The Chicago Board believes in taking no chances where the health of the pupils and teachers are concerned.

Recirculation of Air in Assembly Halls

In modern school buildings, however, the assembly halls are made so large that there is considerable waste of heat which could safely be conserved. For example, the ordinary modern elementary school building has an assembly hall designed to seat approximately 1,000 people and air has to be delivered into this hall to provide ventilation for that many seats. The hall is used to capacity only two or three times per year and this 1,000-seat assembly hall is being occupied daily by perhaps not to exceed 50

people. However, because the hall is used by some classes sometime each day and because zone ventilation is not practical it is necessary to keep the hall heated and ventilated throughout the entire school session. Under such con-

ditions air enters the vent ducts in practically as pure a condition as it was when it was delivered into the hall and is of such purity it may be used in the general air supply to the class-rooms. The heating and ventilating design of new school buildings, therefore, provides for the recirculation of air from the assembly halls when conditions are such it can be done without jeopardizing proper ventilation.

The entire problem of recirculation of air is being considered by a Committee of Health and Sanitation of the Chicago Board of Education, and if this committee finds that general recirculation may be practiced under proper conditions it will result in permitting the installation of smaller boiler plants, and will result in a material reduction in operating costs.

Keeping Business Men Informed

Many Distant Canadian and United States Centres Visited Periodically by Representatives of Specialized Business and Technical Papers

SPECIALIZED business and technical papers in Canada are doing a great work for Canadian industry by collecting the ideas and methods of outstanding men and passing them on to their respective trade or technical industries.

During recent weeks, for instance, the various publications of The MacLean Publishing Company have had men in many parts of Canada attending conventions and gathering business information, as well as in a number of United States centres where conventions of international importance have been held. The fact that so much time and money is spent on gathering and publishing information of this kind illustrates the service the men in charge of these papers are putting into them.

At the present time H. T. Hunter, vice-president of the company, is studying

conditions in Europe. During May the editor of Canadian Foundryman and three other members of the staff attended the American Foundrymen's association Convention at Cleveland, Ohio. A member of the staff of Canadian Machinery attended the convention of the American Society of Mechanical Engineers, held recently in Montreal. The same publication had several representatives in attendance at the convention of the Canadian Association of Stationary Engineers in Toronto.

The editor of Printer and Publisher was present at the convention of the Weekly Newspapers' Association in Halifax a couple of weeks ago, and in August will attend the Printing House Craftsmen's convention in Buffalo.

In June the annual convention of the Saskatchewan Retail Merchants' Association was held in Regina.

(Continued on page 27)

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Attend the Exhibition

IN THE business life of this country a place of growing importance each year is being taken by the Canadian National Exhibition. It is an achievement of great importance for Canada to have developed what is now known as the world's largest annual fair, and this great exhibition of the producing wealth not only of this country but of countries with which Canada trades, is a source of great education to business men.

This year the Exhibition is being held in Toronto from August 25 to September 8. Every retailer within reasonable distance should plan on spending a few days at the Fair. Many new features have been added this year to make it even more valuable and interesting to business men. With two weeks in which to make plans it should be possible for plumbers to arrange to spend two or three days at the Fair, and it is questionable if these days could be spent to any better advantage elsewhere.

From every standpoint the Exhibition is of great educational value to plumbers. Then there is the opportunity of meeting friends both personal and business and interchanging view on various subjects. This influence helps to broaden one's mind. Most plumbers are planning on a holiday during the hot months and even if holidays are over it will pay to take a few days off to attend the Fair.

Need Judicious Optimism

WHILE plumbers throughout the country have had plenty of experience to know that unfavorable reactions follow upon over-expansion and unjustified optimism, there has been enough talk of depression and pessimism without ringing it in unnecessarily. It would seem as though the usual bounds of discretion and caution, desirable enough in their right place, have been carried altogether too far by some in connection with reports of forthcoming developments in Western Canada.

A number of recent reports from correspondents of eastern papers and from railway and other officials have tended to dampen the optimism created by early reports of crop and business conditions. Sanitary Engineer has secured reports on these conditions throughout the Western provinces from business men of standing, whose duty it is to thoroughly analyze such conditions for the guidance of huge businesses. They have something at stake when they make a final summary of the outlook for business; they are not merely expressing an opinion which does not need to carry much weight. From a number of such business men Sanitary

Engineer has secured information that the prospects are for a bountiful crop and improved business conditions. The farmer's buying power is said to be well maintained and collections are improving in many Western districts. One other prominent business man, in an interview with Sanitary Engineer recently, stated that as a result of his investigations he had established that Canadian farmers were buying in normal volume compared with U. S. farmers, who were buying only 55 per cent. of normal needs. Yet despite this falling off in buying in the U. S. that country has been enjoying a broad expansion of business in recent months. With lower overhead costs the Canadian farmer is in a comparatively better position. There is little foundation, from present indications, for pessimistic reports. It is time for a little judicious optimism.

The Fight Is On

THE outcome of British Columbia's fight for equalization of freight rates, has such bearing upon all branches of business in the prairies and the coast province, that it will be awaited with interest. An appeal is being heard before the Privy Council this week at Ottawa, against the order of the Railway Commission of last year. The case dates back to October, 1920, when the Privy Council, dealing with an appeal of the governments of Manitoba and Saskatchewan, ordered the Railway Commission to institute an inquiry into the question of equalization of freight and passenger rates between the east and west.

One of the outcomes of the equalization of rates in the mountain zone would be that the freight on merchandise shipped from Vancouver to a point in the prairies would be equal to that on the same shipment from Winnipeg and covering the same distance in the prairies. Obviously, the result would be that British Columbia firms would be enabled to do business at prairie points which is now done by prairie firms.

The establishment of equal rates might result in considerable change in distributing conditions throughout the whole of Western Canada and therefore the matter has much of interest to plumbers.

A Retailer's "Gold Mine"

AN INDICATION of what can be accomplished by judicious advertising and a development which shows the increasingly important factor which retailers as a class are becoming in the community, is the success of the broad advertising campaign conducted by the business interests of British Columbia for the encouragement of tourists. This campaign was conducted in the territories where most travel originates, in eastern centres of population, on the prairies, and, latterly, in Southern California. The increased use of the motor car for holidaying purposes was, of course, one of the chief factors.

As result of this campaign British Columbia this summer has reached the highest point yet in volume of tourist business. It is estimated by The Financial Post that as result of this enormous travel the expenditure of transients while in the province this summer will be worth at least \$30,000,000 to B. C. With the tourist season just nicely under way representatives of Vancouver commercial organizations estimated that \$10,000,000 had been brought into that city alone. This business has been referred to as a "gold mine," but it threatens to even exceed that, judging by the fact that last year the total mineral production of the province was approximately thirty-five million dollars.

All Selling is a "Confidence Game"

Minute Message No. 24

Written for "Sanitary Engineer" by FRANK STOCKDALE

Profit Figuring Series



THE "con" man proves that confidence of the buyer is the biggest thing in selling. The confidence he builds, however, is but temporary and is undermined by dishonesty.

PERMANENT confidence rests on honesty, integrity and ability.

The salesman who would command and hold the confidence of his customers must not abuse that confidence.

It is a thing which, if not used to further dishonest purposes, will serve as a tower of strength and service of incalculable value.

To win confidence is one thing—to hold it is another.

Win it on the right principles and it will maintain itself.

THINK IT OVER—APPLY IT TO YOUR BUSINESS

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in the Plumbing Trade in Canada.*

Two Well Planned Collection Letters That Brought in \$8,000

Properly Written Collection Letters Bring Money on Overdue Accounts and Help to Keep the Business Liquid—Weak Letters Fail in Their Purpose and Lose Friends for the Store

THE value of collection letters that will secure results cannot be too strongly emphasized, for, as the average hardware merchants knows, the collection of outstanding accounts forms one of the major problems in the business life of the majority of dealers.

A certain firm recently came face to face with the problem of dealing with an accumulation of some \$8,000 of old and very much overdue accounts, about 250 in number and ranging from \$5 to \$135, representing balances due on installment sale contracts covering household appliances of different kinds. These accounts had already been given careful treatment, including the mailing of monthly statements to each debtor, about 20 per cent. had been turned over to a collection agency unsuccessfully and about a third of the total number had been called on by a representative of the firm with equally poor results.

The chief accountant was ready to wash his hands of the whole lot, claiming emphatically that if the means already tried had failed, there was little use in going farther, unless the firm was prepared to take legal action against the lot.

However, it was decided to mail letters to half the list. A young stenographer was put in charge of the appliance accounts ledger and directed to type a personal letter (the first of two prepared for the purpose) to each of the "A" to "L" debtors, 113 in all, representing on Dec. 1 unpaid balances of \$3,550.11. For the purposes of this letter the young woman was given the title of "assistant to the manager," and she signed her full name to the letters written to the women and initials only and surname on letters written to the men.

First Letter Used

The first letter read:

Dear Madam:

When the manager of this department laid the card containing a record of your account on my desk and said to me, "Well, I guess there is only one thing we can do,"—I knew what he meant.

But I told him there must be some mistake—that I felt you would not care to go through an unpleasant experience just for the matter of \$35.75, the balance due on the washer you purchased here early in 1920.

He called my attention to the fact that you had not made any payments since July, 1921, a year and a half ago—at which time you paid us \$10 to apply on your account. However, I asked him to set the matter ahead until Dec. 18—and I told him that I would write you in the meantime—that I was sure you would let me hear from you in the return mail.

A short pencil note on the back of this sheet will do.

The enclosed stamped and addressed envelope is directed to me personally, because I feel that you would prefer to have your note and cheque reach my desk direct so that I may be sure to get your payment entered to your credit on our books before the 18th.

Sincerely Yours,

The 113 letters were written in spare moments between Nov. 28 and Dec. 31, and although December is generally considered a poor month for collections, this letter achieved

the following results; 43 debtors paid up in full, 34 made partial payments, 7 promised to resume payments the following month, 4 complained about the appliance they had purchased, 6 claimed error in the accounts, making a total of 94, or 83 per cent., responding.

Brought in the Cash

In money the returns were: paid in full, \$788.40, partial payments, \$369.60, a total of \$1,158.00.

The fifteen debtors representing \$606.75 who failed to respond to the first letter, received the following letter, timed to reach them the day before the date set for final action:

Dec. 16.

Dear Madam:

This is Tuesday. Day after to-morrow—Thursday, the 18th—is the day set for final action in your case.

Thinking you perhaps mislaid my letter—and maybe forgot all about it—I am taking the liberty of writing you again, for I am sure there must have been some very good reason for your failure to keep up your payments—and I know positively that you wish to avoid any needless further expense to you, and the inconvenience—and embarrassment—should you wait until after the 18th; especially when a line or two of explanation might clear the whole matter up satisfactorily.

Why not write a little note, now, while you have this in hand—and mail it with your cheque in the enclosed envelope? I'll make the proper entry in the ledger right away, so that our books will show that everything is all O. K. with reference to your account.

Sincerely,

Nine of the fifteen responded, leaving only six who paid no attention, representing \$231.47. These with four letters returned by the postal authorities undelivered, made a total of \$420.97 carried through for legal procedure.

Nearly \$8,000 Secured

Later, letters of a similar nature were mailed to the "M" to "Z" debtors with equally satisfactory results; practically cleaning up the \$8,000 in old accounts.

An analysis of the correspondence of the average business institution generally reveals an astonishing lack of common sense, not to mention a lack of knowledge of letter writing, as is clearly evidenced in this example, one of the "form letters" which been sent out earlier to the same debtors, receiving but scanty attention.

Dear Madam:

We beg leave to again call your attention to the fact that you have not paid us anything on your account for a considerable period.

We must insist that you bring your account up to date, and make payments regularly as agreed, or we shall be compelled to take other steps to ensure the collection of the balance due us.

Hoping to hear from you at an early date, we are
Very truly yours,

Even a novice in the study of letter writing would hardly expect such a letter to get results, yet executives of our largest firms are daily permitting such letters to be written and sent out.



THE PROOF

She—Why were you sitting in the window while I was singing?

He—Because I wanted to show the neighbors that I wasn't beating you.—S.E.

MISTAKEN

"Waiter, are you hard of hearing?"

"No, sir. Why sir?"

"The possibility occurred to me that when I asked for liver you thought I said leather."—S.E.

EVERYTHING BUT THAT

Notice in a Kansas hotel—"We will watch your horse, we'll hold your baby, crank your car, and argue with your wife, but we won't cash strangers' checks."—S.E.

REAL TORTURE

Wife (to home-coming husband)—"Oh, Bill, it's been dreadful here all day. That foreign couple above have been quarreling and shouting, and I haven't been able to understand a word of it."—S.E.

FOXY

Citizen—"That's my car. A thief is just giving a blowout."

Policeman—"All right, I'll go over and arrest him."

Citizen—"Sh-h-h! Wait till he gets the tire pumped up."—S.E.

THE YOUNGER GENERATION

"I have a mind to give you a whipping," exclaimed the exasperated father.

"Well, dad," replied the athletic youth, "maybe you can; but if you succeed it will be some item for the sport page."—S.E.

LEGAL HUMOR

"Hello, Mose; how long you-all in jail fo'?"

"Three weeks."

"What did you do?"

"Jest killed ma wife."

"An' you-all only got three weeks?"

"Dat's all. Den dev's gwine ter hang me."—S.E.

MAYBE HE KNEW HIM

"Bill," the poet gasped to his friend, "I wrote a poem about my little boy and began the first verse with these words, 'My son, my pigmy counterpart.'"

"Yes, yes?"

The poet drew a newspaper from his pocket. "Read," he blazed, "see what that compositor did to my opening line."

The friend read aloud. "My son, my pig, my counterpart."—S.E.

PROFICIENCY

A city business man was very keen on having proficient clerks in his employ. Before a clerk could enter his office he was required to pass a written examination on his knowledge of business.

At one examination one of the questions was: "Who formed the first company?"

A certain bright youth was a little puzzled at this, but not to be floored. He wrote:

"Noah successfully floated a company while the rest of the world was in liquidation."

He passed.—S.E.

"MURDERER WANTED"

"Well," he said, scratching his head, "it's better'n nothing, anyhow. I'm going in and ask for the job!"—S.E.

ADAM HEARD IT

The teacher was exasperated at the inattention of her class. The lesson had been on machines, and inventions had been mentioned.

"Now then," asked the teacher impatiently, "from what was the first talking machine made?"

After a lengthy silence a voice from the back exclaimed: "Please, Miss, from a rib!"—S.E.

THE STINGIEST MAN

The stingiest man we ever heard of bought his bride a nickle's worth of peppermint lozenges and took her on a trolley ride honeymoon. When they got off the car he said, "Honey, suppose we save the rest of this candy for the children."—S.E.

A HOPELESS WRECK

Irate Housewife—"Are you not the same man I gave a meat pie to last month?"

Tramp (bitterly)—"No, mum, I'm not; an' wot's more, the doctors say I never will be again."—S.E.

AN ABSENT-MINDED MAN

Lawyer—"What do you think absent-mindedness is?"

Witness (slowly)—"Well, if a man who thought he had left his watch at home took it out of his pocket to see if he had time to go back and get it, I would call him a little absent-minded."—S.E.



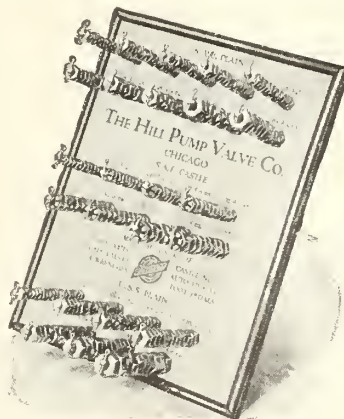
Following items are reproduced from MacLean Publishing Co. trade newspaper of August, 1903:—

"Belleville Gas Co. Ltd. are offering their plant for sale by tender."

New Goods of Interest to Plumbers

Attractive Assortment of Utility Nuts

The Utility Nut Display Board, made by the Hill Pump Valve Co., Belmont and Knox Aves., Chicago, Ill., presents in an attractive manner a practical assortment of standard semi-finished and



"Peter & Sylvester, Stratford, Ont., have the plumbing contract for the Hospital Nurses Home." * * *

"There is a dispute between the master plumbers and journeymen of Hamilton over Saturday afternoon holiday" — the recipients of a handsome travelling bag and bouquet of flowers as a token of the appreciation of their untiring efforts in making the visitors stay so altogether delightful. The presentation was made on behalf of the delegates by Geo. S. Hougham, special representative of the Dominion Executive Council.

KEEPING BUSINESS MEN

INFORMED

At the head of a very successful business in Ottawa." * * *

"Toronto building laborers have decided to return to work after being on strike 11 weeks. They return at their old rate of pay, 25 cents per hour. They struck for 30 cents, were offered 27½ cents but refused it." * * *

"What proved to be a very successful outing was the annual picnic of John Ritchie Plumbing & Heating Co., 61 Adelaide St. E., Toronto, to Long Branch. J. H. Wilson, President, presented the prizes won by contestants." * * *

"In view of the interest aroused by the decision of the manufacturers of soil pipe and fittings to discontinue the sale of light soil pipe and fittings after the end of this year the following schedule of weights is interesting." * * *

"Teams representing the Master Plumbers and the Journeymen's Ass'n. played a ball game at Woodbine Park on Saturday. The Journeymen won 8 to 4. The line ups were as follows:—Masters, J. Wright, Lynden, Menzie, Torpey, McMullen, Adams, R. Wright, Fullerton, McPherson. Journeymen, Abbot, W. Gray, C. Gray, McGee, Row, Andrews, Kemp, Abercrombie, Nicholson."

castellated nuts. The assortment is neat, economical and practical, and the board, which is eleven by fifteen inches, holds 247 nuts and may be used effectively on counter, shelf or table. As may be seen from the illustration, the sizes and types of nuts are plainly printed above each of the groups.

Isaac Church Expansion Bolt

The Isaac Church Expansion Bolt Co., of East Norwalk, Conn., have placed three lines of expansion shields on the



market, known as the "Perfect," "O.K." and "Duplex" brands.

The illustration is of the "Perfect" design. These goods are of first class quality and are claimed to have fine holding ability when properly inserted.

News Notes From Coast to Coast

Properly Written Accounts and Invoices Fail in Time

THE value of collection letters that cannot be too strongly emphasize hardware merchants knows, the ing accounts forms one of the major

WATER WORKS IS COMPLETED

The new waterworks system at Port Credit, claimed to be one of the finest west of Toronto, has been completed and will be opened within a few days. The cost of construction was \$110,000 and there will be over 300 house services.

WESTMOUNT METERS NOT RE-TESTED

Westmount, Que.—C. J. Chevrier, district inspector of the electricity and gas department, of the Department of Trade and Commerce, is taking action against this municipality for "failing to have all their electric meters retested and resealed by Federal Government inspectors every six years, as provided by the Electricity Inspection Act."

INVESTIGATE CAUSE OF MEN'S DEATHS

Saskatoon, Sask.—J. E. Underwood, civil engineer, has been spending some time in Melfort conducting an investigation on behalf of the town at the town sewage disposal plant where three of the workmen met their deaths a short time ago. Mr. Underwood was the engineer in charge of the construction on the plant.

NEW HEATING AND FILTERING SYSTEM

Kitchener, Ont.—Improvements to be made to the gymnasium at St. Jerome's College include the installation of a special heating and filtering system for the swimming tank, numerous additional showers and a thermostatic arrangement in connection of the heating so that the atmosphere of the rooms will always be two or three degrees above that of the water in the pool.

PLUMBING APPRENTICE IS ELECTROCUTED

Quebec City, Que.—Antoine Bedard, 20 years of age, employed as apprentice by the plumbing firm of Pierre Noel, was electrocuted and instantly killed while repairing a furnace in company with another apprentice. He had moved forward with the electric light so that his companion could see better, and in doing so placed his left hand on the furnace, receiving the full electrical discharge of the wire.

Doings in the Plumbing and Heating Industry

OPEN MONTREAL OFFICE

Stanley Brock, Limited, Winnipeg, has opened a Montreal office at 705 McGill Bldg., and will represent the following firms in Quebec and the Maritime Provinces: Standard Sanitary Mfg. Co., Galt Brass Co., Fred Somerville & Co., Toronto, and Never Split Seat Co., Evansville, Ind.

EXTENSION TO RESERVOIRS

Port Moody, B.C.—Extensions to the city water reservoirs are under way. A crew of men are now at work at the intake clearing out the streams that feed the reservoir, a proceeding which will add considerably to the volume of the lake. Board of Works Superintendent D. Fletcher is in charge.

NEW PLUMBING BYLAW SATISFACTORY

Kitchener, Ont.—Plumbing Inspector Zimmerman states that the city's new plumbing bylaw is working out in a most satisfactory manner. This bylaw, already adopted in a number of cities throughout the province, is the one that is urged for the entire province and may be placed upon the statutes shortly.

AMATEUR PLUMBER FINED

Saskatoon, Sask.—George Cuthbertson, engineer and handyman at the Flanagan Hotel, paid \$5 and costs in court for doing a plumbing job at the hotel and "using the tools of the trade" without a certificate from the local board of examiners, contrary to bylaw. The complaint was laid by City Plumbing Inspector George G. Taylor.

PUBLIC COMFORT STATION IS OPENED

Kitchener, Ont.—The new waiting room and public comfort station, next to the city hall, has been opened. It is of brick structure and cost \$16 000. An efficient ventilating system provides for four complete changes of air per hour in the lavatories and washrooms which are located in the basement.

MUST HAVE COMPLETE INSPECTION

Nelson, B.C.—Complete inspection of the plumbing in the house to be served and of the connection must be made in the case of all householders linking up with the new Fairview sewer, it has been decided by the city council. This will affect any people residing outside the city who desire to link up with the city system, as well as the residents.

HOSPITAL CONTRACT AWARDED

Kamloops, B.C.—The contract for the heating plant to be installed in the isolation hospital has been awarded to the Kamloops Plumbing & Heating Co., at a cost of \$600.

MAY INSTALL SEWAGE PLANT

Port Elgin, Ont.—The town council and the Board of Trade have decided to investigate the cost of installing a sewage system and are now having plans and specifications for same prepared.

BRANTFORD'S SEWAGE SYSTEM INADEQUATE

Brantford, Ont.—City Engineer Near has presented a report to the City Council to the effect that an expenditure of nearly two million dollars will be necessary before the city's sewage system will be up to standard.

DISCUSS NEW SEWAGE SYSTEM

Milton, Ont.—It is probable that the electorate of this municipality will be called upon shortly to vote on a by-law for the construction of a new sewage system, the matter being now under discussion by the Town Council who have been in consultation with engineers from Toronto.

SCHOOL CONTRACT AWARDED

Gravenhurst, Ont.—The Board of Education has accepted the tender of Lester Bain for \$61,510 for the construction of the new public school building, together with heating, ventilation and plumbing. A lower tender was made but the bidders in this case failed to furnish the required bond.

INSPECTOR'S METHODS CRITICIZED

Windsor, Ont.—Criticism of the methods used by Plumbing Inspector Abbott Ross have resulted in his sending to the critics, letters giving the facts of instances under criticism. At a recent meeting of the Finance Committee it was expected that the recipients of the letters would appear in person to make complaints but they failed to appear.

PETERBORO DISCARDING OUT-DOOR CLOSETS

Peterboro, Ont.—This city is rapidly doing away with unsanitary outdoor closets, seventy-one having been done away with so far this year. The monthly report for July of plumbing inspector G. Methers shows the total for that month was ten. Permits issued during July numbered 27, covering 17 water closets, 11 baths, 13 basins, 17 sinks and 1 laundry tub.

VOTE ON WATER WORKS BY-LAW

Fonthill, Ont.—Residents of this municipality will vote on a by-law shortly to construct a waterworks system at a cost of \$17,000.

UNIQUE STORM SEWER

Mimico, Ont.—A unique storm sewer is being laid in this town, the construction being of such a nature that the concrete top of the storm sewer will also serve as a sidewalk.

WILL REBUILD RESERVOIR

Walkerton, Ont.—An expenditure of \$20,000 will be made on rebuilding the water reservoir and putting up a small standpipe as a result of the carrying of a by-law by the ratepayers recently.

PLUMBER HAS BAD FALL

Toronto, Ont.—Walter E. Boddington, Dundas Street plumber, met with a serious accident recently from which he is recovering nicely. Mr. Boddington had a fall, luckily escaping breaking his neck in the tumble.

MILLION DOLLAR PLANT POSSIBLE

Sault Ste. Marie, Ont.—The council of the Board of Trade is considering the probability of the establishment in this city of a million dollar plant for the manufacture of oxygen and acetylene gas by a French company with headquarters in Paris.

PROVINCIAL BOARD CONDEMN WELL

Goderich, Ont.—The Provincial Health Board have informed the local water commission that the water from the new well is not fit for domestic use, and have requested a conference on the matter.

TENDERS FOR HIGH SCHOOL

Hanover, Ont.—Secretary Wm. Ruttle, of the school board, has announced that tenders will be received until August 25 for a new eight-roomed high school, costing \$60,000, the tenders being for the steam-heating, plumbing, electrical work and ventilating system.

AWARDED LARGE CONTRACT

Fort William, Ont.—J. J. Flanigan has been successful in the competition for the work of building a \$50,000 sewage disposal plant at Cochrane. Seven other contractors competed for the contract.

CALLING FOR TENDERS

Toronto, Ont.—The Provincial Public Works Department are advertising for tenders on the following jobs: steam heating for the Administration Building, Ontario Hospital, Whitby; steam heating and plumbing for the War Memorial hall, Guelph; and steam heating and plumbing of the Court House, Haileybury.

William Jeffrey, Veteran Traveller, Quits the Road

WILLIAM JEFFREY, for twenty-six years representative of the McClary Manufacturing Company, covering a portion of Ontario, has retired from the road and will take a well-earned rest. William Jeffrey was one of the best known and best liked travelling salesmen in Canada.

William Jeffrey, or "Bill" as he is familiarly known to many in the trade, will be sixty-eight years of age in October, and has been identified with the Canadian trade for the past fifty-two years. The best wishes of a host of friends for a long and happy future will go with Bill Jeffrey on his retirement from the road. He will reside with his daughter at 105 Evelyn Crescent, Toronto.

A new list of d
ice on charcoal ized sheets is in
Canada plates. markets.

Markets

ling in the local market this week
ovement over the last few weeks.
quite an active movement, while
lines. Radiators and boilers are
l dealers in this line state that if
ues an increased demand will be

CHEQUES

(Continued from page 17)

that similar legislation be enacted with reference to other Oriental peoples desiring to enter Canada.

Resolved immediate action be taken by the Dominion Executive Council to establish and put into active co-operation a Dominion wide implement trade section so that some relief for the many grievances of this trade may be secured.

The session concluded on Friday, August 10th, by meeting of the Dominion Executive Council at which important matters affecting Association administration and policy were carefully considered. The growing complexities and variety of the Association's program and the increasing demand for service from all sections of Canada necessitated the creation of new departments and in this connection the services of Geo. S. Hougham as special representative of the Dominion Executive Council have been secured.

A supplementary report was submitted by the Secretary which outlined the plan for the establishment of a Dominion-wide credit reporting and collection department under the auspices of the Retail Merchants' Association of Canada. This report was also endorsed in principle, the details to be worked out by the Dominion Executive Council.

Visiting delegates were unanimous in their expressions of appreciation of the generous hospitality and entertainments

provided under the auspices of the Quebec Provincial Board and the Montreal City Branch of the Association. M. Lapointe and Madame Lapointe were the recipients of a handsome travelling bag and bouquet of flowers as a token of the appreciation of their untiring efforts in making the visitors stay so altogether delightful. The presentation was made on behalf of the delegates by Geo. S. Hougham, special representative of the Dominion Executive Council.

KEEPING BUSINESS MEN INFORMED

(Continued from page 21)

ciation was held in Prince Albert. This was attended by the Winnipeg representative of The MacLean Publishing Company. Another representative attended the annual convention of the Ontario Branch, Retail Merchants' Association, at Brockville. Representatives of Hardware and Metal attended the convention of the Ontario Retail Hardware Association, as well as other provincial retail association meetings and also many hardware and paint club meetings in towns and cities throughout Canada. Sanitary Engineer representatives attended conventions of the Ontario and other provincial organizations of master plumbers, also many local association meetings in Toronto, Hamilton, St. John, Montreal, and other cities. Bookseller and Stationer representatives attended the annual meetings of the Canadian and American associations.

The editor of Men's Wear Review was at the recent convention in Toronto of the Association of International Designers, and in Cleveland of the International Association of Display Men. The editor of Druggists' Weekly attended last week the annual convention of the Ontario Retail Druggists' Association. A Canadian Grocer representative went to St. Andrews, N. B., a short time ago, to attend the annual gathering of the Canadian Wholesale Grocers' Association. The Financial Post has had staff men in leading centres of the Maritime provinces and Newfoundland within the past few weeks, as well as in Western Canada, and three of them have just returned from a trip through the mining districts in Northern Ontario to study the mining situation more closely. One has just returned to our Montreal headquarters from a trip to Vancouver, Edmonton, Calgary and intervening points, where he saw all important bond dealers and mayors and municipal treasurers.

All this is in addition to special visits to different parts of Canada for information that will help the readers of the various publications in their own line of work.

It will thus be seen that the MacLean publications do not depend on theoretical charts and cycles prepared at his desk by an editor who never goes out. These things are useful in conjunction with history and experience, but current facts are given first place.

Questions and Answers Regarding Plumbing and Heating Practice

Plumber Asks How to Lay a Disposal Bed in Flooded Land

Very Flat Land in His Part of the Province—Land is Submerged at Times During the Year

Editor Sanitary Engineer:

The ground in this part of Ontario is very flat, and so as to somewhat relieve and drain the land, very deep ditches are made along all the roads, drives, and provincial highways. For several weeks in the spring and fall, the land is submerged in water to the depth of several inches.

Under such conditions, the laying of a system of field tile is somewhat of a puzzler, and I would like to have some information as to how such a sewage disposal system of field tile can be laid, and any other information you can give. —Geo. E. Rogers, Brigidon, Ont.

Ans.—There is, of course, a solution to every problem, and as this is a problem no doubt to many sanitary engineers, we are answering it fully, as follows:

The septic tank must be installed a little higher up in the ground than is usual. The field tile must be laid at the same depth under the surface, not more than 18 inches, or if the ground is of gravel, or light and loamy, 18 inches from the top of the tile. But in spite of the fact that the tank must be higher, the main drain piping must be laid so that there can be no danger of flooding the syphon chamber.

The field tile in a regular system is on a level (or nearly so) with the syphon in the dosing chamber. Turn to the illustration herewith and the reader will see how the stream will feed the reservoir, a proceeding which will add considerably to the volume of the lake. Board of Works Superintendent D. Fletcher is in charge.

NEW PLUMBING BYLAW SATISFACTORY

Kitchener, Ont.—Plumbing Inspector Zimmerman states that the city's new plumbing bylaw is working out in a most satisfactory manner. This bylaw, already adopted in a number of cities throughout the province, is the one that requires the entire province and chamber. Consequently, the depth of effluent still leaves a distance vertically of about 6 inches or so about the high water mark which covers the ground at intervals.

Distance Greater Between Laterals

In an ordinary system of subsurface field tile for disposing of sewage, and where the ground is fairly loamy, it is perfectly O.K. to lay the laterals from 3 to 4 feet apart, but in this case, the distance should not be less than 8 feet

apart, and, where conditions are favourable, the field tile pipes should not be laid nearer than 10 to 15 feet from the house. If there are wells in the vicinity they should be well protected with a super-cement casing down at 6 or 8 feet and made water-tight at the top as well.

During the wet seasons, water ought to be used as sparingly as possible and all the taps on the plumbing fixtures should be in the best state of repair. It is always well to watch for leaking plumbing fixtures and not allow the W. C. to be flushed too frequently.

In making the cemented joints, the greatest of care should be taken, and all the pipes should be swabbed inside so as to clean out any rough interior obstructions.

ACID FOR CASTINGS

Editor, Sanitary Engineer.

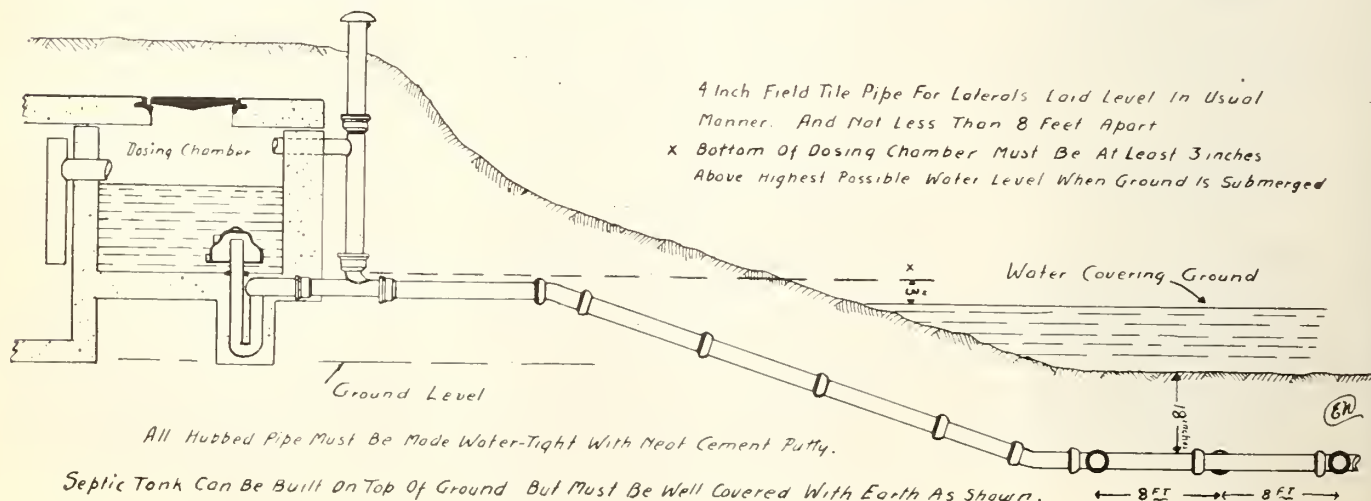
Would you please inform a subscriber what kind of acid is used to dip cast iron castings in to make them fit for patterns. Please describe the process.

C. W. Barker, London, Ont.

Ans.—If the castings have any sand burned on them there is only one acid which will remove it and this is hydrofluoric acid. This acid cannot be held in a glass container because it will eat the glass, which is, of course, a product of sand.

For cleaning off other foreign material and softening the crust on the outside of castings, there is nothing better than sulphuric acid. Acids are to be mixed with additional water before using."

Showing How Disposal Field Tile Pipe Should Be Laid Where Land Becomes Flooded Whether Ground Is ditched Or Not & Area Is Wet Spring And Fall Seasons



Market Conditions and Tendencies

Price Trend on Sanitary and Heating Supplies

Markets at a Glance

PPRICE changes during the past two weeks have been quite numerous, as these changes have been both upward and downward, it is difficult to determine in what direction the general trend of prices points.

Crop reports from the West still maintain that conditions are very good in that line, it is noted in this connection, that a little damage has been done to the crops by black rust. In Winnipeg, pump oilers have declined in price, while melting ladles have advanced.

Ontario price advances took place on charcoal tinplates, and about 20c per box on Canada plates.

Declines occurred on scrap materials, some lines of black sheets, some lines of ready roofing, tarred, asphalt, and carpet felts, and pig iron declined to \$33.30 per ton.

A steady tone is noted in the ingot metal market, and the scrap market is still very quiet.

Collections at present are not what they should be and dealers are looking for a lot of improvement during the coming months.

A new list of differentials and extras on galvanized sheets is in use in Canada now, see Toronto markets.

Montreal Markets

MONTREAL, August 13.—Trading in the local market this week shows somewhat of an improvement over the last few weeks. Dealers in some lines report quite an active movement, while others report a quiet tone in other lines. Radiators and boilers are finding quite an active market and dealers in this line state that if the present boom in building continues an increased demand will be felt.

Eavestrough and conductor pipe are having fair sales and while business in this line is somewhat quiet at the present time dealers report that sales so far this year are considerably in excess of last year. Corrugated sheets and metal lath remain in a firm market and are showing just a fair amount of activity.

The ingot metal market takes on a quiet tone this week, showing very little change from last week, and considering the unsettled conditions prevailing generally, the steady tone shows plainly the present reasonable levels.

Collections are reported as only fair, with dealers generally not expecting much improvement until the merchants' present stocks are cleaned out and fall buying commences.

STEADY SALE REPORTED IN PIPE FITTINGS

Montreal.

Dealers in pipe fittings locally report a steady sale in this line. Prices remain steady and are quoted locally as follows:

PIPE FITTINGS—	
Cast iron fittings	10%
Plugs, cast iron	10%
Do., solid	10%
Do., countersunk	10+
Bushings, cast	15%
Do., malleable	15+
Unions	30%
Flanged unions	10%
Flanged fittings	27½%
Dart unions, black, ½ to 2 in.	27½%
Do., ½ in., 2½ in., and larger ..	10 and 10%.
Do., galv. add to black	27½%
Nipples, ½ to 4", close and short ..	45%
Do., long	50%
Do., 4½ to 8", close and short ..	35%
Do., long	40%
Couplings, 4" and under	25%
Do., 4½" and larger	5%

Malleable Fittings—
Piece list effective June 1st, 1922. Discount 63 per cent.

EAVESTROUGH AND CONDUCTOR PIPE REMAIN FIRM

Montreal.

Dealers in eavestrough and conductor pipe report fair sales locally. Business in these lines is reported as being somewhat quiet at the present time but on the whole considerably in excess of last year.

EAVESTROUGH—

O. G. round and half round, per 100 ft. 3 in., \$16.90; 10 in., \$18.70; 12 in., \$22.20; 15 in., \$35.50; 18 in., \$45.00.

O. G. Square bead, per 100 ft.; 8 in., \$15.90; 10 in., \$17.70; 12 in., \$21.20; 15 in., \$34.50; 18 in., \$44.00.

Discount 65 and 5 per cent.

CONDUCTOR PIPE—Round, Plain and Corrugated, per 100 ft.; 2 in., \$18.40; 3 in., \$22.30; 4 in., \$29.60; 6 in., \$48.00; 6 in., \$58.80.

Discount 65 and 5 per cent.

CONDUCTOR ELBOWS—

Plain or corrugated, price per doz. 2 in., \$5.25; 3 in., \$6.00; 4 in., \$10.50; 5 in., \$24.00; 6 in., \$29.00.

Discount 50 and 10 per cent.

COMPRESSION GOODS ARE FAIRLY ACTIVE

Montreal.

Seasonable business is reported by dealers in compression goods locally. Discounts remain unchanged and are in effect locally as follows:

VALVES AND BIBBS—

Compression work, standard	45%
Fuller work, standard	30%
Quick opening, compression bibbs ..	43%
Bath cocks, quick opening	38%
Bath cocks, compression	40%
Basin cocks, quick opening	46%
Flatway stop and waste cocks, standard	54%
Roundway stop and waste cocks, std. .	42%
Brass steam cocks, standard, ¼ in. .	25%
Radiator valves, standard	55/25%
Do., removable discs	55/25%
Globe, angle and check valves, std. .	25%
Gate or straightway	25%
Emco globe valves	33%
Emco check valves	33%
Jenkins globe, angle, check and swing	
check	plus 15%
Jenkins gate or straightway	plus 11%
Jenkins iron body, globe and angle .	plus 10%
Jenkins iron body, gate	12%
N. P. "O" and "S" traps	34%

LEAD AND ZINC GOODS SELLING WELL

Montreal.

No change has occurred in the price of lead and zinc goods. Lead is said to have touched the bottom and a revision in the price of lead goods is likely to take place in the very near future.

LEAD AND ZINC PRODUCTS—

Lead pipe, per 100 lbs., up to 2 in.	14 50
Do., 2 in. to 8 in.	15 50
Do., 8 in. and over	16 50
Lead waste, per 100 lbs.	15 50
Lead wool, lb.	9 13
Lead sheets, 2½ lbs., sq. ft. lb.	9 10½
Lead sheets, 3 to 3½ lbs., sq. ft. lb. .	9 10
Do., 4 to 8 lbs., sq. ft. lb.	9 09½
Cut sheets, ¾ c. lb. extra and cut sheets	
to size 1 c. lb. extra	
Solder, wiping, lb.	24½
Solder, commercial, lb.	25
Solder, strictly, lb.	27
Solder, guaranteed lb.	29
Solder wire, lb.	39
Solder, commercial, lb.	25
Solder, strictly, lb.	27
Solder guaranteed, lb.	29
Solder wire, lb.	39
Zinc sheets, casks	11
Do., broken lots	12

PRICES REMAIN STEADY IN SHEETS AND PLATES

Montreal.

Prices in sheets and plates remain steady and have failed to show any tendency for some time to deviate from the following:

BLACK SHEETS—

10 gauge, base	4 75	5 00
12 gauge	4 85	5 00
14 gauge	4 95	5 10
16 gauge	5 05	5 15
18—20 gauge	5 20	5 25
22—24 gauge	5 20	5 35
26 gauge	5 25	5 40
28 gauge	5 35	5 60

GALVANIZED SHEETS—

	Queen's Head	Fleur de Lis
18-20 gauge	6 90 7 40	6 65 7 15
22 gauge	7 15 7 65	6 90 7 40
24 gauge	7 25 7 75	7 00 7 50
26 gauge	7 50 8 00	7 25 7 75
28 gauge	7 75 8 25	7 50 8 00
Other Brands—		
10 3/4 oz.	7 75	8 00
28 U. S. gauge	7 00	7 75
28 U. S. gauge	7 50	7 75
24-22 gauge	6 85	7 10
20-18 gauge	6 65	6 75
16 gauge	6 50	6 60

Above prices are for 1/2 ton lots in English iron and 1000 lb. lots in American iron with an extra charge of 25c for less quantities. Extra for sheets 3 ft. wide, 28 gauge and 10 3/4 oz. 25c per 100 lbs.

Further extra for sheets 4 ft. wide according to gauge.

TIN PLATE—

20 x 28 x 100 lbs. basis	15 50
20 x 28 IC, 112s	16 00
20 x 28 IX, 112s	18 00
20 x 28 IXX, 56s	11 00
20 x 28 IXXX, 56s	12 00

TERNE PLATE—

20 x 28 IC, 112s, 200 lbs.	14 50
20 x 28 IC, 112s, 214 lbs.	15 00

CANADA PLATE—

Half bright, 60s	5 60
Half bright, 52s	5 50
Blued 52s	5 90
Blued 60s	6 00

TRADING IN CLOSET GOODS SOMEWHAT LIGHT

Montreal.

Prices on closet goods in the local market have remained steady for some time. Trading still remains somewhat light with local quotations as follows:

CLOSET COMBINATIONS—

Low Down Outfits, each	
Closet, standard outfit, oak	24 00
Do., post hinge seat	24 50
Do., oak vitro or Pussyfoot	24 00
Do., post hinge seat	25 50
Do., mahogany vitro or Pussyfoot, post hinge seat and cover	28 00
Do., vitreous china, oak post hinge seat and cover	29 00
Do., vitreous china, mahogany post hinge seat and cover	30 00
Do., white vitro or Pussyfoot, mahogany post hinge seat and cover	30 00
Do., enamelled iron tank, oak post hinge seat and cover	29 50
Do., enamelled iron tank, mahogany post hinge seat and cover	29 50
Add for 3/4" valve on supply pipe	1 25
Add for spud	0 60
Add for reverse trap bowl	1 50
Add for syphon jet bowl	7 00
Deduct for supply pipe	0 80
Deduct for floor hinge	0 60
Richelieu bowl	2 00
Washdown bowl with spud	9 50
Reverse trap bowl with spud	9 50
Syphon jet bowl with spud	15 00

CLOSET SEATS—

Oak post hinge seat and cover	3 85
Oak wood strip seat and cover	3 50
Mahogany finish post hinge seat and cover	4 65

CLOSET TANKS—

Low down, oak vitro or Pussyfoot with fittings less seat	12 00
White vitro or Pussyfoot with fittings, flush elbow and supply	16 50
Vitreous china tank with fittings, flush elbow and supply	16 00
Enamelled iron with fittings, flush elbow and supply	16 00

ACTIVE TRADING IN RADIATORS AND BOILERS

Montreal.

Dealers in radiators and boilers locally report good sales in this line. The present building activity is responsible for the increasing activity in this line.

RADIATORS AND BOILERS—

Radiator list prices are for 1, 2, 3, 4 and 5 column radiators, per sq. ft.

45 in. to 38 in., \$1.32 in., \$1.10; 30 in., \$1.15; 26 in., \$1.20; 23 in., \$1.26; 22 in., \$1.30; 20 in., \$1.36; 18 in., \$1.40; 16 in., \$1.50; 14 in., \$1.55; 13 in., \$1.60. Discount 44 per cent for hot water, and 45 per cent. for steam.

Wall radiators—5 ft., \$1.15; 6 ft., \$1.10; 7 ft., \$1.05; 9 ft., \$1.05; 12 ft., \$1.05; Discount 41 per cent.

Boilers—Round t water boilers, sizes from 0 to 10, 52 per cent. off list. Square or sectional hot water or steam boilers, 15 in., 3 per cent. with Ontario Government trimmings, list. Square or sectional water boilers, 19 in. to 36 in., 8 per cent. Square or sectional steam boilers, 19 in. to 26 in., 5 per cent. Ontario Government trimmings, list plus 7 per cent. Square or sectional water or steam boilers, 48 in., list plus 10 per cent. With Ontario Government trimmings, list plus 18 per cent.

Round steam boilers, standard trimmings, 16 per cent. Ontario Government trimmings, 13 per cent.

F.o.b. Montreal, Toronto, Guelph.

PRICE ON WROUGHT PIPE REMAINS UNCHANGED

Montreal.

No change is noted in the price of lapweld and butt weld pipe. Prices are still being based on price list No. 59 issued some time ago.

WROUGHT PIPE

Price List No. 59. April 24th, 1923.

Size	Standard Butt weld Pipe S/C per 100 feet.		Gen. Wrot. Iron	
	Blk.	Galv.	Blk.	Galv.
1/8 in.	6.00	8.00	.....	.....
1/4 in.	4.32	6.30	7.56	9.60
3/8 in.	4.32	6.30	7.56	9.60
1/2 in.	5.53	6.97	7.82	9.35
3/4 in.	6.79	8.40	9.55	11.27
1 in.	9.69	12.07	13.77	16.32
1 1/4 in.	13.11	16.33	18.63	22.08
1 1/2 in.	15.68	19.53	22.28	26.40
2 in.	21.09	26.27	29.97	35.52
2 1/2 in.	33.35	41.54	.....	.....
3 in.	43.61	54.32	.....	.....
3 1/2 in.	56.12	69.00	.....	.....
4 in.	63.49	81.75	.....	.....

Standard Lapweld Pipe S/C per 100 ft.

Size	Steel		Gen. Wrot. Iron	
	Blk.	Galv.	Blk.	Galv.
2 in.	24.42	29.60	33.30	38.85
2 1/2 in.	36.27	44.46	50.31	59.09
3 in.	47.43	58.14	65.79	77.27
3 1/2 in.	57.04	69.92	79.12	92.92
4 in.	67.58	82.84	93.74	110.09
4 1/2 in.	78.74	95.52	114	133
5 in.	91.76	112.48	133	155
6 in.	1.19	1.46	1.73	2.02
7 in.	1.55	1.90	2.21	2.62
8 in.	1.63	2.00	2.33	2.75
9 in.	1.87	2.30	2.68	3.17
10 in.	2.23	2.63	.....	.....
10 1/2 in.	2.14	2.62	3.04	3.58
12 in.	2.76	3.38	3.91	4.01

CORRUGATED SHEETS REMAIN STEADY IN PRICE

Montreal.

Prices on corrugated sheets remain steady in price with dealers locally reporting just a fair amount of activity, business in this line, though, being well up to the average with other years.

CORRUGATED SHEETS

	Per 100 sq. ft.
No. 28 gauge	7 00
No. 26 gauge	7 50
No. 24 gauge	10 00
No. 22 gauge	12 50
No. 20 gauge	14 00
No. 18 gauge	19 00

Less 10 per cent.

Lighter than 24 gauge and wider than 27 ins., 75 cents per square extra.

PRICES ON RANGE BOILERS REMAIN STEADY

Montreal.

No change is reported in the price of range boilers locally, with prices and discounts as follows:

RANGE BOILERS

5 Gallon	\$13 50
12 "	14 00
18 "	15 00
25 "	15 50
30 "	17 50
35 "	20 50
40 "	22 75
52 "	24 00
66 "	60 75
82 "	74 00
100 "	103 00
120 "	117 00
144 "	164 00
168 "	187 00
192 "	210 00

25 per cent.

Discount Standard, 35 per cent.; Extra heavy.

SEASONABLE BUSINESS REPORTED IN METAL LATH

Montreal.

Good seasonable business is reported by dealers in metal lath locally. Prices remain unchanged at levels established some time ago.

METAL LATH—

	per sq. yd.
Painted—	
26 gauge	23c.
24 gauge	28c.
32 gauge	32c.
Galvani ed, 5c. per sq. yd. extra.	

IRON AND STEEL PRODUCTS REMAIN UNCHANGED

Montreal.

Bar products still remain in a steady market with prices showing no change, and quoted locally as follows:

IRON AND STEEL—

Common bar iron, 100 lbs.	3 95
Refined iron	5 45
Irish finish machinery steel	4 60
Mild steel	3 95
Single reeled machinery steel	5 50
Band steel	3 95
Sleighshoe steel	3 95
Tire steel	4 15
Harrow tooth steel	3 80
Toe caulk steel	4 85
Mining tool steel, per lb.	0 19
Black Diamond tool and cast steel, per lb.	0 19

NOTE.—Refined iron is approximately \$1.50 per cwt. over base, but fluctuates owing to unsettled market.

Band steel in scroll bundles, 50c per 100 lbs. extra.

Iron and steel 3-16 in. and thinner, 50c per 100 lbs. extra.

SOIL PIPE AND FITTINGS REMAIN STEADY

Montreal.

No change is noticed in the discounts on soil pipe and fittings. Dealers locally report a fair amount of activity in these lines. Local discounts as follows:

SOIL PIPE—

2 and 3 inch	20%
4 inch	25%
5 and 6 inch	20%
8 inch	net

FITTINGS—

2 to 6 inch	37 1/2%
8 inch	net

STEADY TONE IN INGOT METAL MARKET

Montreal.

The metal markets do not show very much change from last week and taking everything into consideration may be said to have held fairly well. Considering the unsettled conditions prevailing generally the steady tone is significant as showing the present reasonable level of prices.



Makes Sales— Makes Friends

MUELLER A-2280 Combination Sink Faucet appeals instantly to every woman—unnecessary to urge its strong points—they show at a glance—that's why it sells quickly and easily. Its many convenient uses makes a friend and a prospective future customer.

Mueller Combination Sink Faucet A-2280

(Gives water in any part of sink
—not confined to certain radius)

Lessens dishwashing drudgery—sprays flowers—cleans vegetables—fills pails on the floor—cleans the sink—and saves the woman's hands.

Raising or depressing the center knob gives hot, cold or tempered water through spout or spray.

Rapidac construction—cone seat washer—3 feet of good red corrugated hose—a high grade **MUELLER** product at a reasonable selling price netting you a good profit.

Order a sample today. Fully warranted.

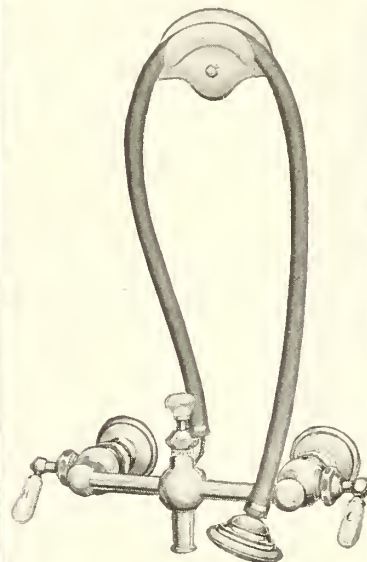
H. MUELLER MFG. CO., LIMITED
Sarnia, Ontario

Water, Plumbing and Gas Brass Goods and Tools

American Factory at Decatur, Illinois, U. S. A.
Branches, New York and San Francisco

Mueller Metals Co., Port Huron, Mich., Makers of "Red Tip" Brass Rod; Welding Rod; Brass and Copper Tubing; Forgings and Castings in Brass and Bronze; also Brass Screw Machined Products.

This **MUELLER** Faucet makes it easy to wash the dishes, without making the hands red and rough.



No. A-2280 (Patented)
can be quickly installed on any regulation sink, and will last a lifetime.

LEAD.—This metal is dull and practically unchanged from last week with supply and demand fairly well balanced. The next move is not easy to forecast but it is not likely to be very pronounced in either direction. The local market is quiet at 8 cents per pound.

SPELTER.—London remains firm and East St. Louis is steady at \$6.15. Future deliveries are quoted at a premium and with the present cost of ore there is no profit for smelters. Any volume of buying would undoubtedly result in higher prices. The local market is firm at 9½ cents per pound.

ANTIMONY.—The tone of the China market is still strong but buying has slackened owing to realizing by second-hands. The local market is still firm, however, with English quoted at 8½ cents and Chinese at 8 cents.

TIN.—Considering the July statistics, which showed a decrease in the visible supply, the market did not respond quite as anticipated but is slightly higher than last week. A quiet market will probably be seen until the political situation is cleared up to some extent. The

local market is steady at 45 cents per pound.

COFFER.—The New York market is slightly easier without any pronounced selling pressure. London holds very well and this metal would probably respond quickly to any favorable use. The local market is quiet at 20 cents for electro and 19½ cents for casting.

TRADING IN ENAMELLED WARE REPORTED AS FAIR

Montreal.

Dealers in enamelled ware report business as being fair. Prices in this line remain steady at levels established some time ago.

ENAMELLED WARE—

Sinks, flat rim—	1 only	2 only	3 only
18 x 24	\$ 7 50	\$ 7 40	\$ 7 30
18 x 30	8 70	8 60	8 50
20 x 30	9 90	9 80	9 70
Bath tubs, roll rim, 4, 4½, 5 feet, 24 to 30 in. wide			51 40
Bath tubs, 5½ feet.			57 10
Lavatories—			
17x19 in. Apron F139 or P4045.....			15 30
18x24 in. Apron F154 or P3845 or P3847			23 60
18x21 in. Apron F169 or P4205.....			17 60
17x19 in. Roll rim. F241 or P4345.....			12 60
Less 30 per cent.			

Toronto Markets

TORONTO, August 13.—During the past two weeks many local price changes have taken place. Declines occurred on some lines of black sheets, ready roofings; tarred, asphalt and carpet felts; pig iron declined from \$34.05 to \$33.30 per ton, while scrap materials took quite heavy declines on almost every line; this market still being very dull. An advance of 20c per box took place in Canada plates, and charcoal tinplates also advanced slightly.

A new Differentials and Extras List, affecting galvanized sheets, is in force now, a copy of which is given in weekly markets following.

CHARCOAL TINPLATES ADVANCE SLIGHTLY

Toronto.

A slight advance in charcoal tinplates has been made. All other lines of tinplates remain as before. Current prices are given herewith.

PLATES. (COKE TIN)—

20x28 100 lbs. basis, box.....	15 50
20x28 1C, 112s, box.....	16 00
20x28 1X, 112s, box.....	18 50
20x28 1XX, 56s, box.....	10 50
20x28, 1XXX, 56s, box.....	11 50
20x28, 1C Terne, 112s, box.....	16 00

PLATES (CHARCOAL TIN)—

20x28, 1X, 56s, box.....	9 50	10 00
20x28, 1XX, 56s, box.....	11 00	11 50

Small Lots Case
Per C. lbs. Lots

TIN PLATES—(For Boilers)—

14x60 1XX, 56 sheets per case..	12 50	12 00
14x60 1XXX,	12 50	12 00

TINNED SHEETS FOR MILK CANS—

16½ x 41¾, 18 ga.	9 65	9 15
21 x 41¾, 18 ga.	9 65	9 15
30 x 72, 20 ga.	14 50	14 00
30 x 45½, 2 ga.	10 15	9 65
30 x 50, 22 ga.	10 25	9 75
30 x 54, 22 ga.	10 30	9 80
30 x 78, 22 ga.	10 35	9 85
30 x 72, 22 ga.	15 00	14 50
36 x 84, 22 ga.	15 00	14 50
42 x 84, 22 ga.	15 75	15 25
48 x 96, 22 ga.	16 50	16 00
30 x 50, 24 ga.	10 25	9 75
30 x 54, 28 ga.	10 30	9 80
60 x 58, 24 ga.	10 35	9 85
30 x 72, 24 ga.	15 00	14 50
30 x 84, 24 ga.	15 00	14 50
30 x 84, 24 ga.	15 75	15 25
30 x 72, 26 ga.	15 50	15 00

ADVANCE IN CANADA PLATES AMOUNTS TO TWENTY CENTS

Toronto.

Canada plates have advanced in all sizes twenty cents per box. This rise took place in the U. S. A. some time ago and it is evident that distributors in Canada have been running on goods which were purchased some time ago, and they did not raise their prices until their stocks of low-priced plates were used up. Current prices are as follows:

CANADA PLATES—

	Per box
Ordinary, 75s	5 85
Blue, 75s	6 15
Blue and oiled, 75s	6 25
Polished, 75s	7 05
Ordinary, 60s	5 70
Blue, 60s	6 90
Blue and oiled, 60s.....	6 10
Polished, 60s	6 90
Ordinary, 52s	5 60
Blue, 52s	5 40
Blue and oiled, 52s	6 00
Polished, 52s	6 80
Welsh polished, 60s	7 05
Welsh polished, 52s	7 30

GOOD QUANTITIES OF OAKUM SELLING

Toronto.

All lines of oakum are selling in seasonable volumes. Prices are given herewith on best selling lines.

OAKUM—

	Per 50 lb. bale
Plumbers' Spun No. 1	3 20
Navy Spun No. 1	7 50
Navy Unspun No. 1	7 00

DECLINE TAKES PLACE IN SOME LINES OF SHEETS

Toronto.

A slight decline is noted in the prices of some lines of galvanized sheets. This change affects 10¾ oz., 3ft. and narrower, and 28 U. S. gauge Premier and Apollo.

Black sheets are also shaded somewhat this week to a level about 25 cents lower in price.

SHEETS, GALVANIZED—

Premier and Apollo Brands—		
10¾ oz. 3 ft. wide.....	7 00	7 25
10¾ oz. narrower	6 90	7 05
28 U. S. gauge, 3 ft. wide....	6 60	6 85
28 U. S. gauge, narrower.....	6 50	6 65
26 U. S. gauge.....	6 20	6 35
22 and 24 U. S. gauge	6 05	6 20
18 and 20 gauge.....	5 90	6 05
16 U. S. gauge	5 75	5 90
12 and 14 U. S. gauge.....	5 60	5 75

F.o.b. and delivered in Toronto.

An extra 20c. per 100 lbs. is charged for Keystone and Premier brands copper-bearing sheets.

	Queen's Head	Fleur de Lis
28 gauge, base	7 50	
26 gauge	7 10	
24	80	
22	6 65	
18 to 20 ga.....	6 50	
28 gauge base	7 50	
26	7 10	
24	6 80	
22	6 65	
18 to 20 ga.....	6 25	

TANK STEEL PLATES—

¼-in. and heavier, base	3 60
3-16 in.	3 95

BLUE ANNEALED SHEETS—

10 gauge, base	4 50	4 60
12 gauge	4 55	4 65
14 gauge	4 60	4 70
16 gauge	4 65	4 75

BLACK SHEETS—

18-20 gauge	5 05	5 30
22-24 gauge	5 10	5 35
26 gauge	5 15	5 40
28 gauge	5 25	5 50

A charge of 25c per 100 lbs. is made for less than case lots. An extra 10c. per 100 lbs. is also charged on sheets 2½ in. wide.

LEAD AND ZINC PRICES REMAIN FIRM

Toronto.

Lead and zinc prices were not changed during the past two weeks. Fair amounts of goods have been sold in these lines.

LEAD AND ZINC GOODS—

Lead pipe, per 100 lbs., up to 2".....	14 50
Do., 2" to 8"	15 50
Do., 8" and over.....	16 50
Lead waste, per 100 lbs.....	15 50
Note—Lead pipe is subject to a discount of 10 per cent.	
Lead traps and bends	15½
Lead wool, lb.	0 14½
Lead sheets, 2½ lbs., sq. ft. per lb.....	0 12½
Lead sheets, 3 to 3½ lbs.....	0 11½
Do., 4 to 8 lbs., sq. ft. lb.....	0 11½
Cut sheets, ¾c. per lb. extra.....	
Cut sheets, to size, 1c. per lb. extra.....	
Solder, guaranteed, lb.....	0 29 0 30
Do., strictly, lb.	0 27 0 28
Do., commercial	0 26 0 27
Do., wiping	0 27 0 28
Do., wire	0 36 0 38
Zinc sheets, casks, lb.....	0 11½ 0 12½
Do., do., less, lb.....	0 12½ 0 13½

SOME LINES OF ROOFING DECLINE

Toronto.

Some lines of smooth surfaced roofings in the cheaper varieties were reduced in price fifteen cents per square in light, medium and heavy weights.

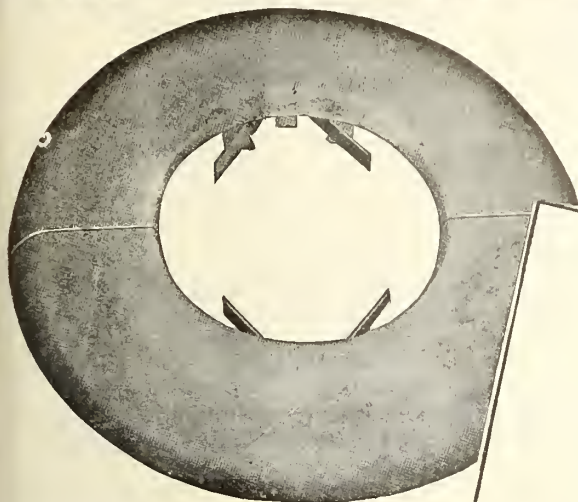
Roofing pitch underwent a decline of ten cents per cwt., the existing price now being for first grade \$1.55 to \$1.70 per 100 lbs.

ROOFING, TOMAHAWK—

1 ply smooth surface.....	1 18	1 27
2 ply smooth surface	1 35	1 45
3 ply, smooth surface.....	1 65	1 75

Perfection

First



No. 10-A

The No. 10a Perfection Floor and Ceiling Plate has been the recognized standard for many years and has always maintained the original *High Quality*



"Genuine"



Perfection Line

New York Office
and Warehouse—
234 Water Street

Originators of the Genuine
No. 10 and 10A Plates
Your Jobber can supply you

NEW LIST OF DIFFERENTIALS ON GALVANIZED SHEETS

Toronto.

The following list of differentials is in force for the different gauges and extras for widths and lengths of galvanized sheets. All figured per 100 lbs. LIST OF DIFFERENTIALS ON GALV'D. SHEETS—

BASE, No. 28 ga. (12½ oz. sq. ft.)—
Advance per 100 lbs.—30 ga., 10½ oz. 50c.;
10¾ oz. 40c.; 29 ga., 11½ oz., 25c.
Less per 100 lbs.—26 ga. 14½ oz., 30c.; 24 ga.,
18½ oz., 45c.; 22 ga., 22½ oz., 45c.; 20 ga., 26½
oz., 60c.; 18 ga. 34½ oz., 60c.; 16 ga., 42½ oz., 75c.;
14 ga. 52½ oz., 90c.; 12 ga., 72½ oz., 90c.; 10 ga.,
92½ oz., \$1.00.

Add 20c. per 100 lbs., for premier or Keystone copper bearing sheets.

EXTRAS LIST FOR WIDTHS AND LENGTHS OF GALVANIZED SHEETS—
All figured per 100 lbs.

Gauge	Amount to add for width
All gauges 24 in. to 30 in.	none
10 to 14 32 in. to 40 in.	none
10 to 14 over 40 in. to 44 in.	10c
16 to 18, 32 in. to 36 in.	none
1 to 18 over 36 in. to 44 in.	10c
20 to 32 in. to 36 in.	none
20 to 24 over 36 in. to 40 in.	20c
20 to 24 over 40 in. to 44 in.	40c
26 ga. 32 in. to 36 in.	none
26 ga. over 36 in. to 40 in.	30c
26 ga. over 36 in. to 40 in.	30c
28 ga. 32 in. to 36 in.	20c
28 Ga. over 36 in. to 40 in.	60c
10¾ oz., 32 in. to 36 in.	20c
29-30, 32 in. to 36 in.	20c
24 and heavier, under 24 in. to 12 in.	20c
Under 12 in. to 9 in.	30c
25 and lighter, under 2 in. to 30 in., 25c; under 12 in to 9 in., 35c.	

Gauge	Amount to add for lengths
All gauges 60 in. to 120 in.	none
10 to 30 120 in. to 144 in.	10c
Under 60 in. to 30 in.	20c
Under 30 in. to 18 in.	30c
For resquaring—add 5 per cent.	

Extras for odd sizes and gauges orders 5000 lbs. to 2500 lbs. 10c extra; under 2500 lbs. to 1000 lbs., 25c. extra; under 1000 lbs., 50c. extra.

L.C.L. shipments—10c. per 100 lbs extra.
Inspection by buyer—10c. per 100 lbs. extra.

Standard gauges and sizes—
Gauges—No. 30—10¾ oz.; 28—26—24—22—20—18—16—14—12—10.
Widths—24 in.—26 in.—28 in.—30 in.—36 in.
Lengths—72 in.—84 in.—96 in.—120 in.
Weights per sq ft. and thickness of various gauges—

Cot. per sq. ft.	Gauge	Thickness in inches.
3.28 lbs.	No. 14	.078 in.
4.53 lbs.	No. 12	.109 in.
5.78 lbs.	No. 10	.140 in.
2.66 lbs.	No. 16	.062 in.
.65 lbs.	No. 30	.012 in.
.67 lbs.	No. 10¾ oz.	.013 in.
.72 lbs.	No. 29	.014 in.
.78 lbs.	No. 28	.016 in.
.91 lbs.	No. 26	.019 in.
1.16 lbs.	No. 24	.025 in.
1.41 lbs.	No. 22	.031 in.
1.65 lbs.	No. 20	.038 in.
2.16 lbs.	No. 18	.050 in.

PIG IRON DECLINES TO \$33.30 PER TON

Toronto.

The price of pig iron which was \$34.05 was very well maintained considering the condition of business lately and the fact that furnaces were piling up large stocks, but the last two weeks has seen an easing off in price to \$33.30 per ton. PIG IRON—(Price per ton)—
In ordinary quantities 33 30

DOMINION WIPERS ADVANCE IN PRICE

Toronto.

The prices of Dominion wipers have advanced about 10 per cent. The colored wipers are selling at 15 cents per pound and the white at 19 cents.

AVERAGE SALES IN BRASS GOODS, LAVATORY FITTINGS, ETC.

Current prices of best sellers given herewith:

BRASS GOODS—	
BATH COCKS (Compression)—	
No. 3825 Compression, complete with tails	3 75
No. 4 Std. Comp. Double Bath. No. 3829 F	4 46
Ditto with China Index. No. 3830F.....	4 92
BATH COCKS (Quick Opening)—	
Brass handle on top, No. 3850 F.....	4 90
China handle on top, No. 3850 F.....	4 98
Quatern Top China Hdle. A3200.....	4 98
Brass handle on side, No. 3851F.....	4 95
(less Jewell's cup)	
China handle on side No. 3852 F.....	5 45
(less Jewell's cup)	
Quatern Side China Hdle. A3500.....	5 45
No. 4½ Fuller, brass handle, No. 382.....	6 48
A2395 Mueller type Shower Faucet.....	9 25
¾ in. N. P. Brass Supply Pipes.....pair	2 20
½ in. N. P. Brass Supply Pipes.....pair	2 30
½ in. Galvanized Iron Nickle Plated Supply Pipes.....pair	1 75
1¼ or 1½ Overflow and Waste, 19 gauge, N. P. on rough.....	3 20
1½ T.B.L. Overflow and Waste, 19 gauge, N. P. on the rough.....	4 15

LAVATORY FITTINGS	
Riley Basin Cocks China Index, per pair	7 00
Riley Jr. Basin Cocks, China Index, per pair.....	6 00
Adenac Basin Cocks, Brass Handle, No. 3632, per pair.....	4 68
Adenac Basin Cocks, China Handle, No. 3635, per pair.....	5 20
Quatern Basin Cocks, side China hdle, per pair, A2900.....	5 20
Quick Opening Basin Cocks, Brass Hdle. No. 3630, per pair.....	3 70
Quick Opening Basin Cocks, China Handle, No. 3633, per pair.....	4 28
Quatern Basin Cocks, Top China Hdle. per pair, A1900.....	4 28
Fuller No. 0 Basin Cocks, Brass Handle, No. 3650, per pair.....	4 10
Fuller No. 0 Basin Cocks, China Handle No. 3651, per pair.....	5 04
Midget No. 0 Basin Cocks, No. Index, No. 3623 per pair.....	3 14
Midget No. 0 Basin Cocks, With Index, No. 3623, per pair.....	3 45
¾ in. N.P. Brass supplies to wall or floor	2 20
¾ in. Galvd. supplies N. P.....	2 05
1¼ in. N.P.S. Traps to floor No Vent 20G No. 4458.....	3 46
1¼ in. N.P.S. Traps to floor with Vent 20G No. 4462.....	4 53
1¼ in. N.P.P. Traps, No Vent 20G No. 4450.....	2 74
1¼ in. N.P.P. Traps No Vent Toronto By-law No. 4450.....	2 97
1¼ in. N.P.S. Traps with Vent Toronto By-law No. 4462.....	4 98
1¼ in. N.P.S. Traps with Vent Toronto By-law No. 4462.....	6 67
2 in. N.P.S. Traps with Vent Toronto By-law No. 4462.....	14 00
Patent Overflow basin plugs.....	0 71
Pop up waste.....	5 00
Unique waste China Knob.....	5 50
Unique waste China Index.....	5 00
1¼ in. Deep Seal Trap No Vent.....	3 75
1½ in. Deep Seal Trap No Vent.....	6 00
1¼ in. Elliptic Trap.....	6 50
1½ in. Elliptic Trap.....	9 00
Whirlpool N.P. Traps list prices less.....	15%
½ in. Lever Handle, Stop and Waste solid key, No. 3969.....	0 83
½ in. Lever Handle, Stop and Waste, pin cheek, lose key, No. 4032.....	1 04
½ in. Lever Handle, Stop and Waste, pat. cap, loose key, No. 4044.....	1 21
½ in. Boiler Drain Cocks 3571.....	0 80

DECLINE NOTED IN PRICES OF FELTS

Toronto.

A reduction in the price of tarred felt is noted lately. This material was selling at \$3.90 per 100 lbs. and is now selling at \$3.25 to \$3 60 per 100 lbs. Other lines of felts remain at former levels as listed herewith.

FELTS—	Per cwt.
Carpet Felt, 16 oz.....	4 50
Carpet Felt, 20 oz.....	4 50
Carpet Felt, 24 oz.....	4 50
Asphalt Felt, 10 lbs.....	3 90
Asphalt Felt, 15 lbs.....	3 90
Tarred Felt, 7 ozs.....	3 25

QUIET MARKET ON INGOT METALS

Toronto.

The market on ingot metals during the past two weeks has been quiet. No changes have occurred in prices of any metal, those in force being as follows: INGOT METALS—

Copper \$18.00 to \$19.00; Tin \$45.00 to \$46.00; Lead \$8.00 to \$8.25; Spelter \$9.00; Antimony, \$8 25 to \$8.50; Aluminum, \$23.00 to 25.00.

PRICES DECLINE IN BUILDING FELTS

Toronto.

Declines have been made this week locally on prices of carpet, asphalt and tarred felts. The prices existing at present are given herewith:

FELTS—	
Carpet Felt, 16 oz.....	4 35
Carpet Felt, 20 oz.....	4 35
Carpet Felt, 24 oz.....	4 35
Asphalt Felt, 10 lbs.....	3 45
Asphalt Felt, 15 lbs.....	3 45
Asphalt Felt, 25 lbs.....	3 45
Tarred Felt, 7, 10, 16 oz.....	3 45

NEW IRON AND STEEL BAR EXTRAS LIST IN FORCE

Toronto.

The new iron and steel bar extras list which is effective in U. S. A. is now effective on shipments coming to Canada from U. S. A., and also on shipments from Canadian mills, having been put into force by the latter, last Friday.

On some sizes of small rods the difference in price amounts to as much as an advance of 50 per cent. and in some cases even more over former prices on small sizes. This readjustment was found necessary as on some of the smaller lines it was found that they were costing more to turn out than the list covered.

Reinforcing and commercial bars are selling in greater volume than in July, but holiday season and summer dullness are still felt to a marked degree.

After September 15th business should show some improvement in the steel line. Some lines of steel and iron bars have declined slightly from former levels, but the difference is not great.

IRON AND STEEL—	Per cwt.
Bars, steel..... base	3 75
Bands, 3-16 in. and lighter.....	4 25
Hoops heavier than 1 in. x 20G.....	5 50
Hoops lighter than 1 in. x 20G.....	6 00
Shapes, smaller than 1 in.....	4 00
Sheets Galv., base.....	6 65
Sheets, black, base.....	5 60
Sheets, blue, base.....	4 60
Plates, ¼ in. and heavier.....	3 75
Plates 3-16 in.....	4 15
Cold rolled steel, rounds.....	4 15
Sleigh shoe steel.....	4 10
Cold rolled flat square, Hex.....	5 75
Tool steel, high grade.....	30 00
Drill steel.....	18 50
Crucible cast sheet.....	30 00

SOIL PIPE PRICES UNDERGO NO CHANGE

Toronto.

Discounts on soil pipe, which are given herewith, are unchanged from last issue.

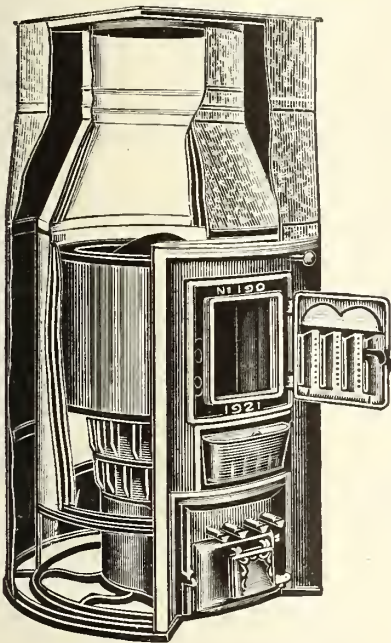
SOIL PIPE AND FITTINGS—	
2 inch.....	Less 20%
3 inch.....	Less 20%
4 inch.....	Less 25%
5 and 6 inch.....	Less 20%
8 inch.....	net
FITTINGS—	
8 inch fittings.....	net
2 to 6 inch.....	Less 37½%



See Our Exhibit of "Banner" Furnaces

Stove Bldg.

Toronto Exhibition, Aug. 25th—Sept. 8th



The Banner Pipeless Furnace.

- provides 70° warmth in any house in the coldest weather.
- has no pipes to cause dust or dirt.
- cuts fuel bills 1/5.
- heats every room in the house through one register.
- can be installed in any house—old or new—in less than one day, without cutting walls or partitions.

A visit to the fine exhibit of Banner Furnaces in the Stove Building will be well worth your while. There, graphically, will you view the mechanical perfections of the Famous Banner Line of Pipe and Pipeless Furnaces.

Thousands of visitors will receive daily much valuable information regarding Banner Furnaces. Many of them probably live in your own territory. You will be able to profit quickly by the educational propaganda thus spread. It will be easier to convince prospects who have seen the Banner Furnace for themselves.

Visit us in the Industrial Building. See for yourself why Banner Furnaces are enjoying such nation-wide popularity. If you are not already a Banner Representative in your town we have an especially attractive proposition for you.

Come to the Exhibition. Come to the "Banner" Exhibit

**The Galt Stove & Furnace Company
LIMITED**

GALT



ONTARIO

SCRAP MATERIALS TAKE BIG DECLINE ON SOME LINES

Toronto.

The scrap market is very dull yet. This has been the case for some time past.

Many lines have declined to much lower levels. Heavy melting steel from \$14.00 to \$11.00, scrap pipe \$10.00 to \$7.00, steel turnings \$13.50 to \$9.00, scrap rails \$14.00 to \$12.00, No. 1 cast iron \$20.00 to \$18.00, stove plate \$16.00 to \$14.00, car wheels \$16.00 to \$15.00, heavy yellow brass \$7.00 to 6.50, boots and shoes \$2.00 to \$1.50, high rubber boots \$2.00 to \$1.50, and auto tires 50 cents to 25 cents per cwt. Current prices are given herewith:

SCRAP MATERIALS— f.o.b. Toronto

Gross Tons—	
Scrap Iron	
Heavy melting steel	11 00
Scrap pipe	7 00
Steel turnings	9 00
Malleable scrap	16 00
Rails, scrap	12 00
Net tons—	
No. 1 cast	18 00
Stove plate	14 00
Car wheel (std.)	15 00
Scrap Metals	
Heavy copper wire	12 00
Light chopper	9 00
No. 1 composition	9 00
Red brass turnings	8 00
Light brass	4 50
Heavy yellow brass	6 50
Heavy lead	5 00
Tea lead	3 00
Scrap zinc	4 75
Aluminum sheet and clippings	14 00
Aluminum cast	13 00
Hard lead	4 25
Scrap Rubber	
Boots and shoes	1 50
High rubber boots	1 50
Auto tires	0 25
Solid tires	0 25
Inner tubes, mixed	2 50
Peelings, mixed	0 75

MALLEABLE AND CAST PIPE FITTINGS SELLING IN GOOD VOLUME

Toronto.

Good quantities of pipe fittings are being sold at prices which have been in force for some weeks, no changes having occurred lately. Prices in force at present are given herewith:

PIPE FITTINGS—Cast Iron—	
Elbows, tees, etc., standard sizes	10%
Plugs, solid, countersunk and std.	10%
Bushings	15%
Flanged unions	17½%
Flanged fittings	20%

MALLEABLE FITTINGS—

Bushings	15%
Hex. nipples, R. & L.	25%
Steam cock wrenches	30%
Union ells and tees	40%
Boiler fittings (old style)	32½%
Do., (new style)	27½%
Lip unions, all sizes	30%
Dart unions, blk. up to 2"	27½%
Dart Unions, blk. 1½" also 2½" and over	10 and 10%
Ringhangers	30%
Wrought nipples to 4" close & short	45%
Do., 4½" and up	5%
Malleable fittings, sold from price list, less 63%	
Drainage fittings, black	22½%
Do., galvanized	27½%
C. I. Stop cocks, up to 4"	25%
C. I. Stop cocks, up to 4" with brass plug	15%

COTTON CANDLEWICK DECLINES TO 56 CENTS

Toronto.

The decline in the price of cotton candlewick amounts to about ten per cent., making the new price, per lb., 56 cents, whereas the old level was 60 cents.

BOOKING PRICES ON STOVE PIPE DAMPERS HIGHER

Toronto.

Stove pipe damper prices for fall bookings are higher this year than last. See prices herewith on two of the best selling sizes:

DAMPERS (Cast Stove Pipe)—		Doz.
6 in.	.....	1 70
7 in.	.....	2 10

CLOSET COMBINATIONS SELLING IN SEASONABLE QUANTITIES

Toronto.

No changes have been made in the prices of any lines of closet combinations. Fair quantities are being sold

GOOD QUANTITIES OF CONDUCTOR PIPE AND EAVESTROUGH SELLING

Toronto.

Sales of conductor pipe and eavestrough have been good lately. Jobbers

and dealers report good sales on ordinary stock lines such as round pipe and O. G. trough. Prices are unchanged.

TROUGH (Eave)—

O. G. Square Bead—		Per 100 ft.	Per 100 ft.
8 inch	.....	\$15 90	15 inch.....\$34 50
10 inch	.....	17 70	18 inch..... 44 00
12 inch	.....	21 20	
O. G. Round and Half Round—			
8 inch	.....	16 90	15 inch..... 35 50
10 inch	.....	18 70	18 inch..... 45 00
12 inch	.....	22 20	
Less 65 and 5 per cent.			

PIPE (Conductor)—

Plain, round or corrugated		Per 100 ft. in 10 ft. lengths
2 in., in 10 ft. lengths, list	.....	18 40
3 in. in 10 ft. lengths, list	.....	22 30
4 in. in 10 ft. lengths, list	.....	29 60
5 in. in 10 ft. lengths, list	.....	48 00
6 in. in 10 ft. lengths, list	.....	58 80
Less 65 and 5 per cent.		

CONDUCTOR ELBOWS—

Plain, round or round corrugated:		
2 inch, list	.....	\$ 5 25
2 inch, list	.....	6 00
4 inch, list	.....	10 50
6 inch, list	.....	29 00
Outlets, cut offs, tubes and conductor hooks		
List less 50 and 10 per cent.		

Winnipeg, Man.

WINNIPEG.—There are few price changes in plumbing and steamfitting lines. Melting ladles and toilet paper show an advance, while block tin type and pump oilers are quoted at lower prices. Closet combinations continue in fair demand. Soil pipe, eavestrough and conductor pipe are ruling steady. Crop conditions continue favorable in the West and as the season advances an improvement in business is expected.

MELTING LADLES MOVE UPWARD

Winnipeg.

A slight advance is recorded on melting ladles and 3-inch is quoted at \$3.60 per dozen, 4-inch at \$4.50, 5-inch at \$8 and 6-inch at \$9.30.

TOILET PAPER SHOWS AN ADVANCE

Winnipeg.

Toilet paper, both oval and round, has moved upward. Ovals in case lots are quoted at \$6 and less than case lots at 75 cents per dozen. Rolls in case lots are quoted at \$4.50 and in smaller quantities at 60 cents per dozen.

PUMP OILERS AT REDUCED QUOTATIONS

Winnipeg.

A slight reduction is in effect on pump oilers with Union detachable spouts. The following quotations are in effect:

PUMP OILERS—Per dozen—
No. 350, tin, \$10.50; No. 351, tin, \$11.50; No. 353, tin, \$12.50; No. 355, tin, \$13.75.

BLOCK TIN PIPE AT LOWER LEVELS

Winnipeg

A decline is recorded on block tin pipe and latest quotations are 72 cents per pound.

FAIR DEMAND FOR CLOSET COMBINATIONS

Winnipeg.

There is a steady demand for closet bowls, seats, low down tanks and other closet combinations. Quotations show no change.

SOIL PIPE AND FITTINGS REMAIN FIRM

Winnipeg.

No change is noticed in discounts on soil pipe and fittings. Dealers report sales quite seasonable for these lines.

SOIL PIPE—

2 and 3 inch, list less 5 per cent.; 4 inch, list less 12½ per cent.; 5 and 6 inch, list less 5 per cent.; 8 inch, list plus 15 per cent.

FITTINGS, (Soil Pipe)—

2 and 3 inch, list less 30 per cent.; 4, 5 and 6 inch, list less 30 per cent.; 8 inch, list plus 15 per cent.

EAVESTROUGH AND CONDUCTOR PIPE STEADY

Winnipeg.

Quotations remain unchanged on eavestrough and conductor pipe, and dealers report a seasonable demand.

EAVESTROUGH—

Size 8 in. per 100 feet	6 08
Size 10 in.	6 75
Size 12 in.	8 10
Size 15 in.	11 25

CONDUCTOR PIPE—

Size 2 in., per 100 feet	7 43
Size 3 in. per 100 feet	8 55
Size 4 in. per 100 feet	10 80
Size 5 in.	15 30

QUIET TONE PREVAILS IN RADIATORS

Winnipeg.

There is no change in quotations on radiators. Business is on the quiet side but dealers are looking for a revival of trade shortly.

LEAD AND ZINC PRICES FIRM

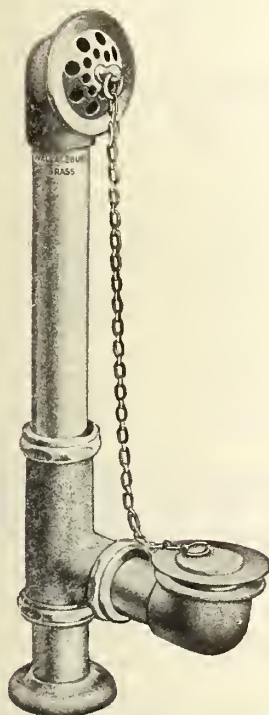
Winnipeg.

No changes have occurred in prices of lead and zinc goods. A steady tone is maintained on these lines.

Tubular Plumbing Goods

We Manufacture—

and can supply from stock :



No. 4350
Waste and Overflow

Waste and Overflows:

Adjustable horizontally and vertically

Adjustable P. and S. Traps:

Plain and Vented.

Deep Seal Traps:

Sink and P.O. Plug.

All Traps and Waste and Overflows
supplied in 19 Imp. Ga. Tubing.

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Bath Supplies:

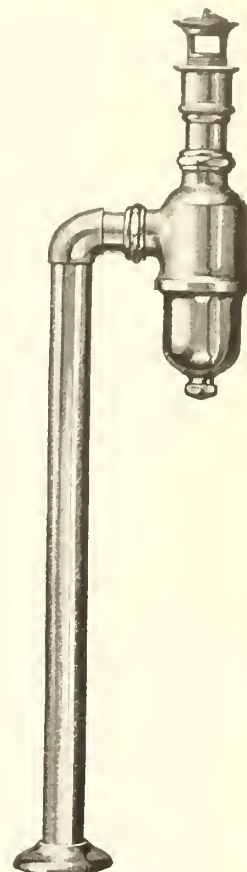
With Ell or one piece offset.

Tank Supplies:

Plain or with Stop.

All Supply Pipes furnished in **Iron**
Pipe size and weight.

**Attractive designs—Prime material—
Superior finish.**



No. 4301
Deep Seal Trap

For Quick Service Ask Your Jobber

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WALLACEBURG BRASS & IRON MFG. CO.

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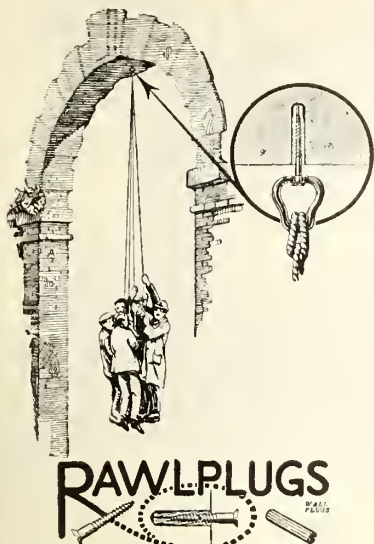
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Here is a Convincing Test of Strength!



An ordinary screw secured in the keystone of an archway with a No. 14 Rawlplug **HELD FOUR MEN SUSPENDED IN THE AIR WITHOUT THE RAWLPLUG SHOWING ANY SIGNS OF STRAIN.**

And another test proved ordinary screw anchors were incapable of holding one man in the same ceiling.

This shows the unequalled superiority of Rawlplugs over all other screw anchors!

Contractors and Engineers throughout Canada recommend Rawlplugs because they are more economical, easier to handle, and more satisfactory in every way than the old type of screw anchor.

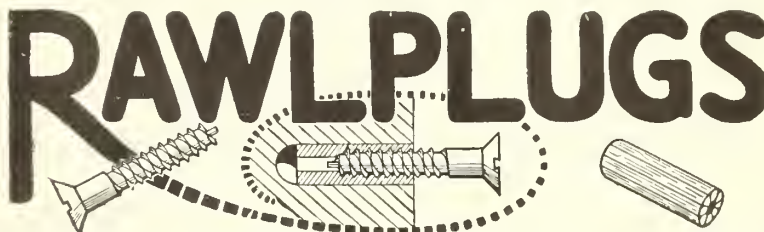
We would like you to try Rawlplugs too!

Just drop us a line for a few samples and price list. We will be pleased to send them to you.

INVENTIONS LIMITED

The Rawlplug Co., of Canada,
Southam Building, Bleury St., Montreal.

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KERR VALVES

Strength To Meet Every Test

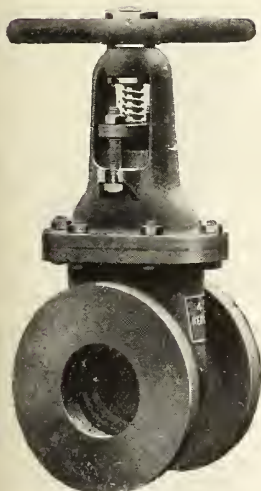
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Bronze bushed Stuffing Boxes, and Malleable Iron Glands are employed, and stems are of the dimensions and strength required on this exacting work.

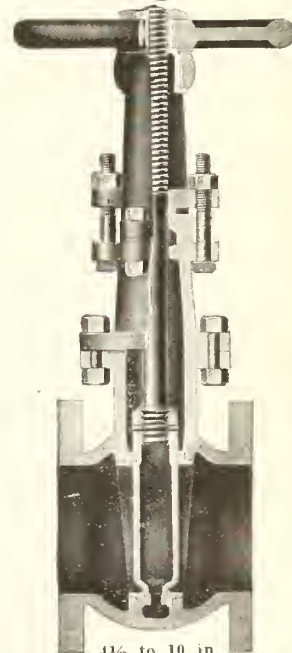
Commercial valves of our manufacturer are supplied in this pattern with this equipment, thus insuring a remarkably high-class valve.

The valves are compact in design, sturdy construction, and modern throughout. Iron Body, Bronze Mounted, with outside Screw and Yoke.

Specify Kerr KEYSTONE Gate Valves.
Every valve tested.



No. 62
2½ to 4 in.



4½ to 10 in.

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LIMITED

WALKERVILLE

Valve Manufacturers

ONTARIO

**AIR COMPRESSORS**

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AIR LINE SYSTEMS

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W. H. Cunningham & Hill, Ltd., Toronto.
C. A. Dunham Co., Ltd., Toronto.
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Wallaceburg Brass & Iron Mfg. Co., Ltd., Wallaceburg, Ont.
Wolverine Ltd., Toronto, Ont.

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Hamilton.
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Wolverine Ltd., Toronto, Ont.
W. H. Cunningham & Hill, Ltd., Toronto.

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Empire Mfg. Ltd., London and Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
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Galt Brass Co., Limited, Galt.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
Standard Sanitary Mfg., Co., Ltd., Toronto.
Hamilton.
Steel Trough & Machine Co., Ltd., Tweed, Ont.

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Smart Turner Machine Co., Ltd., Hamilton, Ont.

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Standard Sanitary Mfg. Co., Ltd., Toronto.
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Warden King, Ltd., Montreal.

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Canada Metal Co., Ltd., Toronto.
Empire Mfg. Co., Ltd., London and Toronto.
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H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
Pittsburgh Water Heater Co., Pittsburgh, Pa.
Ruud Mfg. Company, Ltd., Toronto.
Standard Sanitary Mfg. Co., Ltd., Toronto.
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Fittings, Limited, Oshawa.

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Smart Turner Machine Co., Ltd., Hamilton, Ont.
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Lord & Burnham Co., Ltd., Toronto.
Ruud Mfg. Co., Toronto.
Smart Turner Machine Co., Ltd., Hamilton, Ont.
Warden King, Ltd., Montreal and Toronto.
W. H. Cunningham & Hill, Ltd., Toronto.

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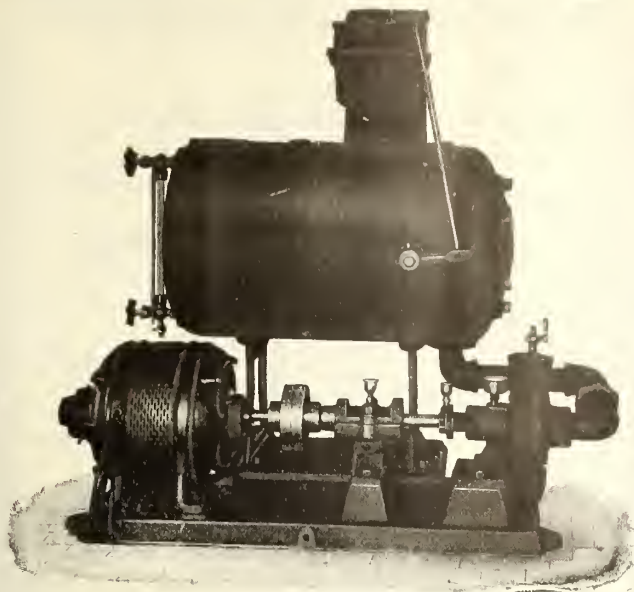
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A type which is receiving wide recognition.

Eliminating Future Troubles

Long life and happiness must be installed with your new heating equipment.

Before the name plate is affixed to a Smart-Turner pump, every contingency is provided for.

Long life and unbroken service is built in.

**Smart-Turner Automatic Feed Pumps
and Reservoirs**

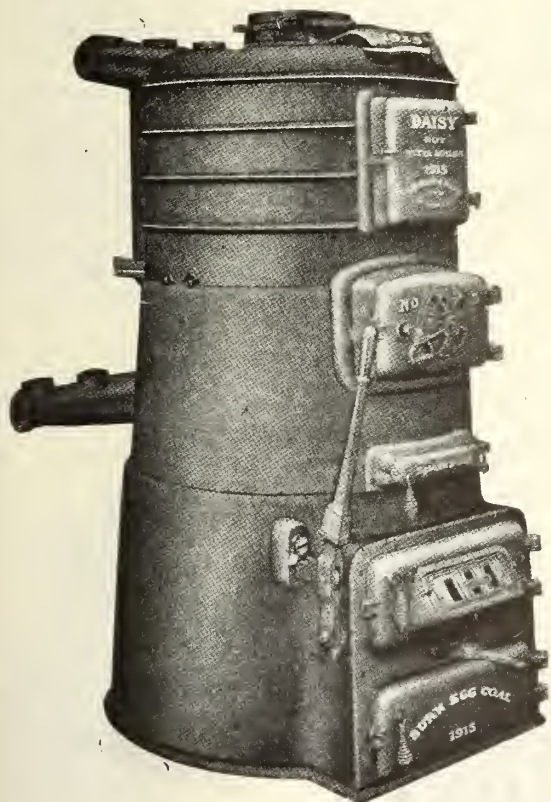
are sturdy, compact and enduring.

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HAMILTON,

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Representatives in Toronto, Montreal, St. John and Winnipeg.



What about those Heating Jobs?

During the past long cold winter some of your customers were not satisfied with their heating system. They suffered the intense cold through poor heating and the coal shortage.

Some of them are in the market for a new system, and will want installation this fall. Sell them a hot water system which will save them coal and give them sufficient heat.

Sell them a "Daisy" boiler and "Viking" radiators, which will give you liberal profits.

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Canadian Tube and Iron Co., Ltd., Montreal.
Empire Mfg. Co., London and Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
Standard Sanitary Mfg. Co., Ltd., Toronto, Hamilton.

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Chamberlain Desolve Co., Ltd., Toronto.
Empire Mfg. Co., Ltd., London and Toronto.
Hercules Chemical Co., Inc., New York City.
Wolverine, Ltd., Toronto, Ont.
W. H. Cunningham & Hill, Ltd., Toronto.

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Canada Metal Co., Ltd., Toronto.
Empire Mfg. Co., Ltd., London and Toronto.
Fittings, Limited, Oshawa.
Forwell Foundry Co., Kitchener, Ont.
Katie Foundry Co., Galt, Ont.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
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Greenfield Tap & Die Corp., Galt, Ont.

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Kerr Engine Co., Walkerville, Ont.
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Steel Trough & Machine Co., Ltd., Tweed, Ont.

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Steel Trough & Machine Co., Ltd., Tweed, Ont.

TANKS—STORAGE

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W. H. Cunningham & Hill, Ltd., Toronto.

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Dart Union Co., Limited, Toronto.
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If interested, tear out this page and place with letters to be answered.

Burnham Boilers



There Was No Monkeying With the Fire Travel

The Burnham Twin Section Boiler has all the strong points of the square sectional. Most important of all, it has the same long fire travel to make its short coal bills.

It is very conservatively rated. In fact, what the Twin has done this past winter has opened the eyes of all of us. No better cast iron boiler made for low pressure heavy duty work.

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(Boiler Department)

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Building,
Toronto, Ont.



Factory:
St. Catharines, Ont.

EZ

RADIATOR HANGER

YOU'LL USE 'EM YET!



Style R

Advantage No. 8

This hanger uses standard fittings for return pipes.

No special tools required. For ANY style radiator; ANY type wall construction.

Write for the whole list of their advantages.

Healy-Ruff Co.

Dept. 23

Minneapolis, Minn.

"Made in Canada"

CHRISTIE UNIT SYSTEM SEPTIC TANKS

Convenience for ALL. Thousands of homes can be modernized. Any place where there is NOT a Public Sewer CHRISTIE'S UNIT SYSTEM SEPTIC TANK is the only correct method of disposal.

HEALTHY, CONVENIENT, ECONOMICAL

Made of Reinforced Concrete. Can be shipped anywhere. Easy to install. Low in price. Both syphon and overflow type. No job too small. None too large. We have a type for both heavy and light soils.

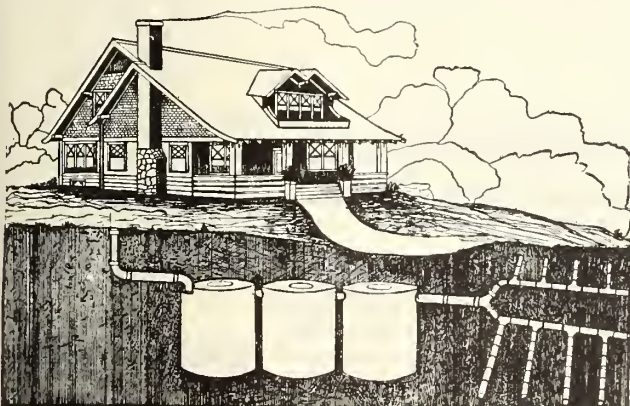
HOMES, SCHOOLS and SUMMER HOUSES.

Write for catalogue and dealers' price list.

Manufactured By

Christie Concrete Products Co.

Lindsay, Ontario



PATENTED

A Suggestion

"Medium Weight soil pipe has a round bead pattern at the hub to distinguish it readily from the Extra Heavy weight pipe which has a flat bead pattern."

This is only a matter of design, one being as strong as the other.

We respectfully suggest the advisability of continuing the excellent practice of invariably specifying medium weight pipe in the round bead pattern."

TORONTO HARDWARE MFG.,
CO., LIMITED

When Does a Paper Really "Reach" You?

1.

Advertisers of the present day are continually having impressed upon them the large number of readers "reached" by this or that medium.

Altogether too much stress is laid upon the number reached; insufficient importance is attached to the manner of reaching them.

As you pass along the street a handbill is thrust upon you. You take it, glance at it, and in all probability immediately throw it away. That advertisement has undoubtedly reached you, but has it reached you in the manner in which you would like your own advertisement to reach the customers you are aiming to get?

It is this question of how people are reached that is really the important one for the advertiser to consider. It is useless "reaching" a large number if you reach them at an unsuitable time and under conditions in which your advertisement will have no effect; everything depends upon the nature of the contact. If this were not so you might as well save the expense of sending out salesmen and send out messenger boys instead. They would "reach" your clients. But you send out a salesman because a salesman is something more than mere flesh and blood. He can do your work more effectively than the messenger boy.

In the same way a publication is more than mere paper and ink. If it is the right kind of publication it is just as far ahead of the handbill or other unsuitable medium for carrying your message as the salesman is ahead of the messenger boy. It will do your work far more effectively.

This is the first of three talks designed to show you how you can satisfy yourself that the medium you choose can not only reach, but reach effectively, and under the most favorable conditions, the man whom you wish to secure as a client.

Look out for No. 2 in our next issue.

The MacLean Publishing Co.

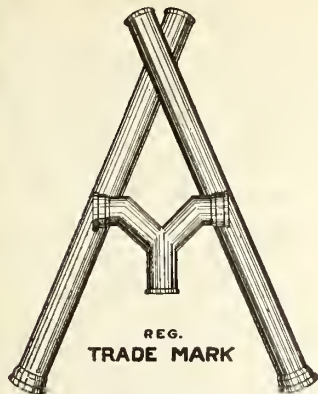
143-153 University Avenue, Toronto

Publishers of:

The Financial Post
Canadian Grocer
Hardware and Metal
Dry Goods Review
Men's Wear Review

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Canadian Foundryman
Druggists' Weekly
Power House

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USE

TESTED Soil Pipe

IT COSTS NO MORE AND YOU KNOW THE JOB IS RIGHT

Manufactured by

FORWELL FOUNDRY, LTD.

KITCHENER, ONT.

-CARHARTT



TRADE MARK

"BUILT UP AND SUPPORTED
BY ORGANIZED LABOR"

-OVERALLS



Tapped Closet Bend

Easier to attachMore permanentCost less

PNEUMATIC WATER SUPPLY SYSTEM

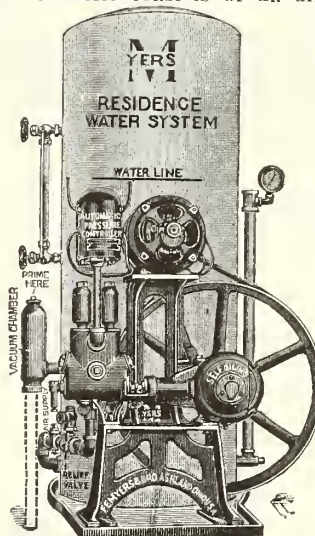
*Gives country residents all the advantages of
a city water system without the excessive cost*

The wide-awake dealer will make big profits out of this system among customers who now have difficulty with their water supply. It is so simple to operate and costs practically nothing for upkeep.

The outfit consists of an air-tight steel tank which can

be placed in the basement, and a "Myers" famous guaranteed pump (hand or power), suitable for pumping air or water, together with pipes and fittings. Any plumber or gas fitter can easily install it. Every outfit guaranteed to do the work for which it is designed. For small or large dwellings.

Write us for Water System Catalogue and prices. Now is the time to interest your customers.



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MACHINE CO., LTD.**
Tweed., Ont., Canada

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Representative.

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Fan Heating and Ventilating Engineering is the pinnacle of all other forms of heating, and of all branches of steam fitting and sheet metal work. It prepares you for:

1. For Employers it enlarges their business opportunities 100%.
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Full Information Free.

[] Fan Heating and Ventilating Engineering. [] Sheet Metal Design and Pattern Drafting.

[] Business Management, for office folks.

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O. W. Kothe, Prin.

St. Louis, Mo.



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If interested, tear out this page and place with letters to be answered.

WANT ADS

If you want a buyer, clerk, salesman, traveler, position, you can reach the best men in the trade through these columns.

If you wish to buy or sell a business, or dispose of overstocks, you can reach a larger number of sanitary engineers through this page than in any other way.

Rates (payable in advance) 2 cents per word. An additional charge of 10 cents for each insertion is made when Box Number is required. Each figure counts as one word. When panels are desired a charge of \$2.00 is made for a panel 1 inch deep by 2½ inches wide. Address all advertisements for this section to SANITARY ENGINEER, 143-153 University Avenue, Toronto, Canada.

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FOR SALE

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Suitable for the approaching period of building activity, road construction, etc. This is a line of great importance in making successful, profitable contracts. Our C. T. Brand of Wrought Pipe has been

THOROUGHLY INSPECTED

by practical, experienced men. It is tested to 600 lbs. hydraulic pressure, and branded with our trademark. We carry this line of reliable pipe in sizes ½-in. to 4-in. Black or Galvanized. We also manufacture nipples and couplings, black and galvanized, in all sizes.

Ask your Jobber for C. T. Brand Wrought Pipe

Canadian Tube and Steel Products Co., Ltd.

Operating Canadian Tube and Iron Co., Limited
Works at Lachine Canal, Montreal

The British office of SANITARY ENGINEER is located at the office of the MacLean Publishing Co. of Great Britain, Limited, 88 Fleet Street, London, E.C., E. J. Dodd, director.

"Yes, Madam, Your Husband was a Careful Investor"

*Will your banker be able to
give your widow this assurance?*

YOU do not save money for the mere joy of having it. You have a definite purpose in view. It may be to protect your own later years; to educate your children and start them out in life or to sustain your widow and dependents should you yourself pass on.

For these purposes you save—and invest what you save. It is a sacred trust. To fulfill it you must put that which you save where it will be safe, first, and produce a good income, second. You do this by investing.

Only carefully made investments will achieve your ends. Careful investing requires reliable information.



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Nine thousand other Canadian business men subscribe to it and look to it for news and advice concerning stocks, bonds, mortgages, insurance and business policies in general.

Do the same yourself. Subscribe to-day. Lay the foundation of your fortune on the solid rock of knowledge.

When you have filled in this coupon and attached your cheque for \$5 you have assured yourself of 52 issues full of meaty, intelligible, readable business and investment news. Better do it now.

THE FINANCIAL POST,
143 University Avenue, Toronto.

Send me The Post for one year (52 issues).
I enclose \$5 (or you may draw on me).

NAME

ADDRESS

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A Size to suit Every one of your customers

No task is too small, none too large for Royal Automatic Storage Gas Water Heaters.

Doctors, dentists, barber shops, clubs, apartments, schools, theatres, restaurants, hotels — there is a type of "Royal" to meet every need for instant hot water service.

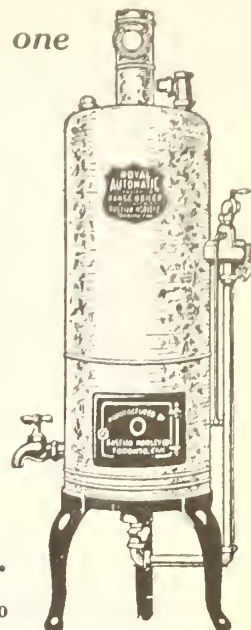
At present low prices you can sell a Royal as easily as an ordinary heater.

Sold only by or through plumbers.

Write for full information.

Bastian-Morley Ltd.

125 Hanson Street, Toronto



THE Royal

Automatic Gas Water Heaters

See the Exhibit of Farrfhern Heating Specialties and "Morehead" Return Traps at Toronto Exhibition, Aug. 25-Sept. 8

Architects and Heating Contractors will be especially interested in our Exhibit in Machinery Hall, at the Toronto Exhibition.

We invite you to visit us, to examine carefully the important features of the Farrfhern Heating System. We will be delighted to show you how Morehead Back-to-Boiler Systems are saving fuel daily in hundreds of manufacturing plants in Canada.

Ask us any question about Heating Systems. Let our Service Department help you, as we have helped others, to greater industrial economy and higher operating and heating efficiency.

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Farrfhern Steam Service
Limited
304 Manning Chambers, Toronto



It Never Fails



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TEN HIGH STREET
BOSTON, MASS.
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are practically indestructible because they are made of Heavy Malleable Castings, and the joint being Bronze against Bronze, gives the strongest kind of guarantee that the Dart will stay as tight as it is first made when screwed to a pipe line.

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ORDER FROM YOUR JOBBER. There's a variety of styles to fill all requirements.

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Before Vitro Fittings are put into Vitro Tanks they are tested. Again, **after** they are installed in the tanks they are tested.

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Your Jobber Sells Them

GALT BRASS COMPANY, LIMITED
GALT - ONTARIO

VITRO
NOTROUBLE
TANK

Sanitary Engineer

Plumber and Steamfitter of Canada

Vol. XVII.

PUBLICATION OFFICE, TORONTO, SEPTEMBER 1, 1923

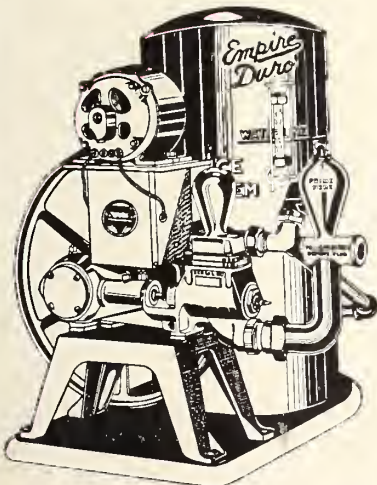
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THE EMPIRE AT THE EXHIBITION

WE ARE displaying a full line of bathroom equipment, plumbing supplies and "Empire-Duro" Water Supply Systems.

Bring your prospects, show them the superiority of the "Emco" products, the beauty of our bathroom equipment, the care taken in the manufacture of our plumbing supplies. Explain the special features of "Emco" products, why they are leaders in this field.

This is your opportunity to sell your out of town prospects on the convenience and economy of the water supply system. When they see an "Empire-Duro" in operation it will be the clinching argument on why you should install an "Empire-Duro."



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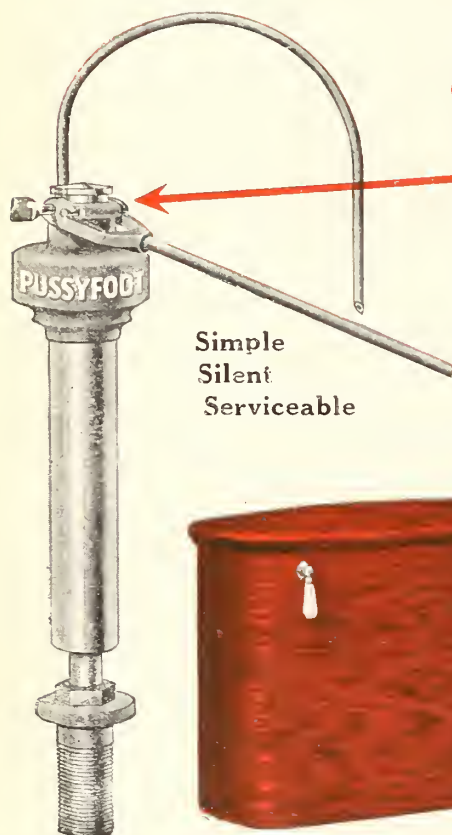


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And know the

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With the Patent easily adjusted Valve



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Cleanliness
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Every Canadian Solid Vitreous Lavatory Possesses These Qualities

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SAINT JOHNS
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Sales handled exclusively through recognized jobbers
in plumbing supplies



Take a Tip from the Parrot



Mechanically the parrot squawks what he is taught—repeats without variation the same phrase, the same word over and over again. Pretty soon a listener grasps what the bird is saying.

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Infuse your sales talk with the one big idea—the cleanliness and convenience of a properly installed water or sewage system.

Take a tip from the parrot; say your piece and say it often.

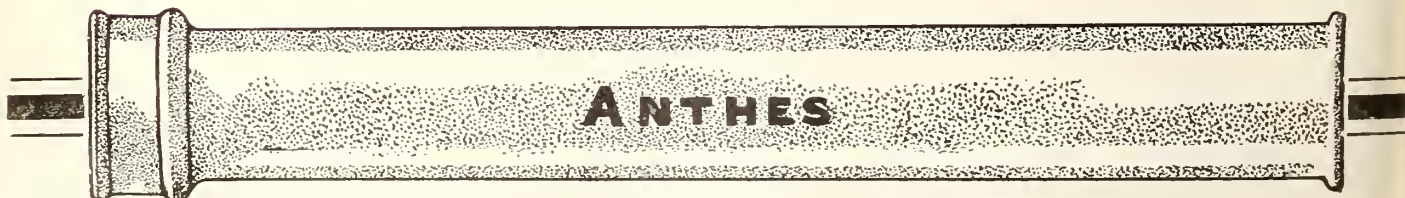
Install only ANTHES Soil Pipe, Syphons and Fittings.

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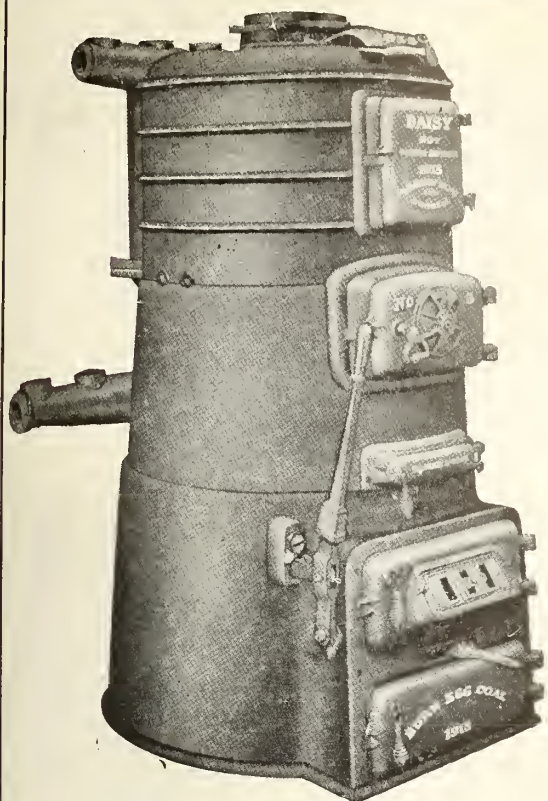
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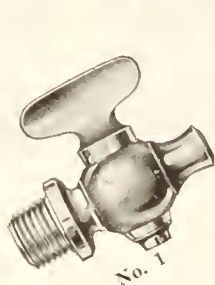


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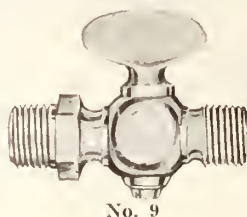
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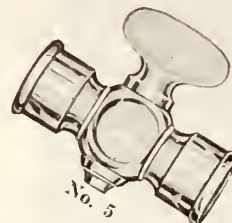
Steam Specials



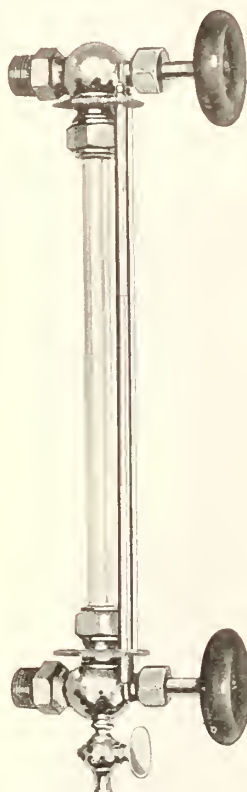
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No. 9



No. 5



No. 54



No. 54

WE MANUFACTURE,
And supply promptly,
FROM STOCK

AIR COCKS—All sizes and styles.

AIR VALVES—Five designs.

STEAM GAUGE COCKS—Plain and with Union.

COMPRESSION GAUGE COCKS—Iron and wood
wheel with and without S.B.

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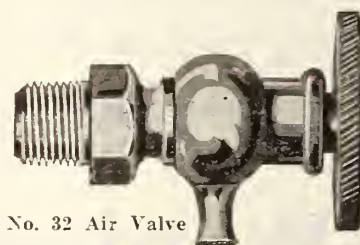
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EXPANSION TANK MOUNTINGS—One style.

STEAM COCKS—Standard.



No. 43 Gauge Cock



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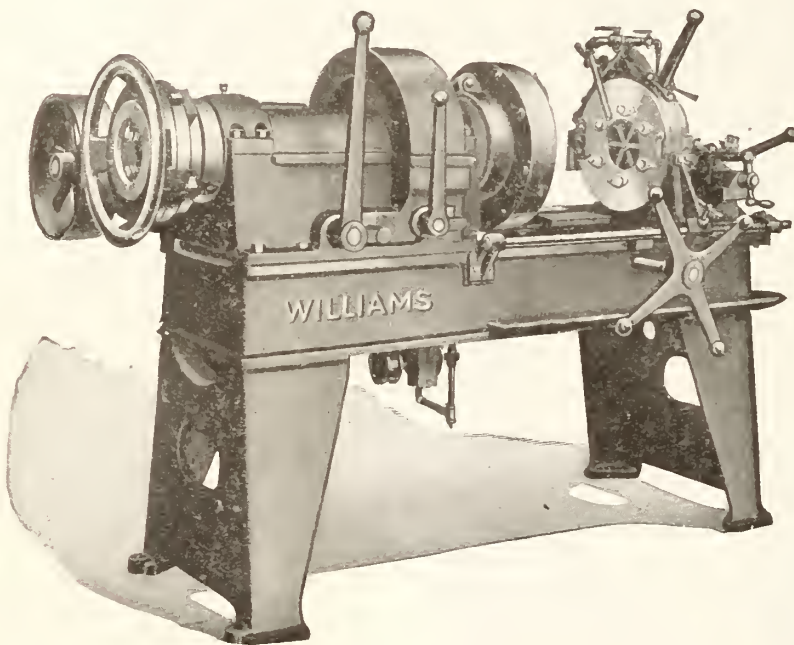
"Standard"
PLUMBING FIXTURES

Standard Sanitary Mfg. Co. Limited
TORONTO

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Instant Adjustment—Maximum Cutting Speed—
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its outstanding features



Let Us
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You

How to get this machine and pay for
it with the extra profits it makes
for you in your shop.

*Write to-day for the inside of Power
Pipe Cutting and Threading Costs*

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IMPERIAL RADIATORS have the qualities of rugged construction and fine workmanship that make New King Boilers famous. Install both for lifelong heating comfort.

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IMPERIAL RADIATOR COMPANY, LIMITED

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Toronto, Ontario

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An Important Announcement to the Heating Trade

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On view, at our Booth in the Stove Building, Toronto Exhibition, is one of our new "Crusader" Hot Water Boilers. It contains such unique features of construction, design and operation that a close inspection will amply repay everyone who sees it. We will gladly answer any questions and explain fully its construction and special advantages.

In addition to our regular line of Hydro Thermic Steel Hot Water Radiators we have evolved a

New and Improved Cast Iron Radiator for Hot Water or Steam

Note these exclusive features:

Much lighter than ordinary cast radiators in proportion to its radiating surface.

Carries less water than ordinary type, therefore responds more quickly to the fire.

Exhaustive tests in our plant have entirely proven its strength and utility.

Come to our Booth in the Stove Building. See graphically our new Boiler—our new Radiator. If you cannot visit us write at once for literature and important information.

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PRESTON - ONTARIO

WINNIPEG SASKATOON CALGARY EDMONTON VANCOUVER

SANITARY ENGINEER

PLUMBER AND STEAMFITTER OF CANADA

ESTABLISHED 1907

PUBLISHED TWICE MONTHLY

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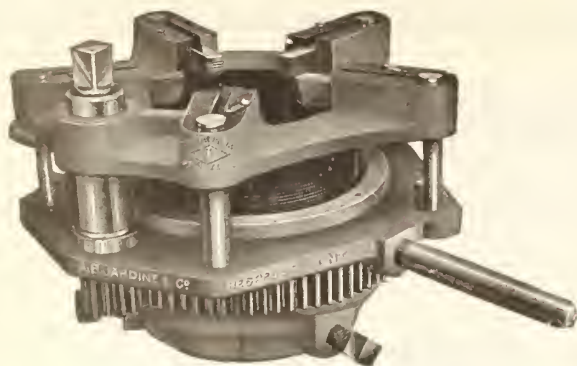
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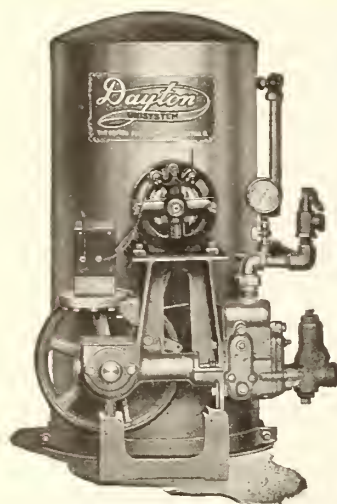
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By persistence and aggressive salesmanship you've sold a Griffith Septic Tank or Dayton Pump. Once installed by you the next prospect is more easily convinced. A smoothly operating Disposal or Water System is worth volumes of sales talk.

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We can tell you how to make your efforts more profitable. Write us for plans and important details.



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Established
1907

Circulates
Throughout
Canada

Sanitary Engineer

Plumber and Steamfitter of Canada

Published
First
and
Fifteenth
of Month

Vol. XVII

TORONTO, SEPTEMBER 1, 1923

No. 17

Urge Closer Co-Operation Between the Gas Company and Plumbers

Dominant Note of 16th Annual Convention Canadian Gas Association—Exclusive Handling of Appliances by Dealers Often Develops Into Price Proposition—An Automatic Heater Display Which Pulls Results

Report of 16th Annual Convention Canadian Gas Association, Ottawa, Ont.

OTTAWA, Ont.—Co-operation between the gas company and the dealer in the sale of domestic appliances was advocated strongly at the sixteenth annual convention of the Canadian Gas Association, held in Ottawa, August 23, 24 and 25. Over one hundred and fifty delegates were in attendance from all parts of Canada, as well as a number of officials of the American Gas Association and large manufacturers from the United States.

Col. D. R. Street, retiring president of the association, presided over all sessions, the convention being formally welcomed to the city by Mayor Frank Plant who, during his three terms as mayor of Ottawa, has been associated with the gas company in many ways.

While the majority of the addresses delivered and the problems taken up were principally of interest to the gas company in their manufacture of gas, the address of W. B. Johnson, Toronto, dealing with the sale of domestic appliances, was one that contained many points of interest and value to every dealer of appliances, particularly that portion of the address dealing with various methods of boosting business. Mr. Johnson's address follows:

The sale of a gas appliance means practically nothing to the company, but the gas used in that appliance, month after month, and year after year, is what we are interested in, and what we must always bear in mind.

As a rule, you will find that an appliance will be replaced by a more modern one when it has outlived its years of usefulness, providing it has been giving satisfactory service to the consumer.

Let us first consider the local conditions for the sale of appliances, for you will generally find one of the following methods:

FIRST: gas company selling appliances exclusively..

SECOND: dealers selling appliances exclusively.

THIRD: gas company and dealers both selling appliances. Each have their good points as well as their faults.

Let us consider the merits of the different methods.

FIRST: gas company selling appliances exclusively. This is a condition that is very seldom found now, but was quite common some years ago. Under these conditions, it would be entirely up to the company to see that they handled only such appliances as would give satisfactory service, that the appliances would be connected and adjusted properly, and at a price that was reasonable.

Consumers should have no cause to complain of the service due to the inefficiency of the appliance, for it would be up to the gas company to see that they were installed and maintained in a proper condition.

SECOND: dealers selling appliances exclusively. Except in very rare cases, this method does not prove very satisfactory to the gas company, for the dealer is chiefly interested in the profit he derives from the sale of that appliance, and does not as a rule stop to consider the service that will be obtained from same. Under this method, it usually develops into a price proposition, and some of the dealers will handle only the cheapest line they can get, regardless of the efficiency of the appliance. If you get this class of goods on your line, you

cannot expect your consumer to obtain the service he is entitled to and which he should get. You may say that it is the consumer's own fault if he purchases an inferior line of goods, but how is he to know? It is natural that he should look to his gas company as to the best appliances to install. Even if the consumer should purchase a good grade of appliance, it is liable to be connected or adjusted in an improper manner, as the dealers do not make a study of the appliances, and his fitters do not know as much about the appliances as the fitters employed by the gas company.

All this reflects on your company, for the consumer does not blame the merchant who sold him the appliances, but condemns the gas company for sending out gas of an inferior quality. Another very important point to consider is that the dealer will not get out to push the sale of appliances, but will take such as come to him the easiest, and the gas company is therefore not obtaining the in-



G. A. JEFFRIES

creased sales they should expect.

THIRD: Gas company and dealers both selling appliances. Under this arrangement, you have as many extra salesmen working for the good of your company, as there are dealers and clerks. For, if you are pushing the sale of gas appliances, they will also endeavor to sell gas appliances. Of course, you are liable to find all kinds of appliances sold and installed, but, if you preach quality in your selling talk and advertising, the public will soon come to look for same in what they buy, and if they consider price only, when purchasing an appliance, they are not so liable to blame you if same proves unsatisfactory. It is possible for any company to handle all the good lines of appliances made, so that it is easy for you to obtain the exclusive sale of one or two particularly good ones, and the dealer can secure the sale of another line of equal quality. When possible, it is well to work with the dealers, giving them the benefit of your knowledge of appliances, and the sale of the same, for they will, as a rule, appreciate it and will work with you, which means increased gas sales, and that, of course, is our goal.

Assuming that we are selling appliances, let us first consider what kind of display room or office we should have for the proper showing of our goods.

It is generally admitted that the gas company's office should be located on a prominent street, and in a location where there is considerable traffic. There is no reason why a gas company should not have one of the best locations in the city.

You should carry a good line of appliances, and same should be kept clean and well polished at all times. It is not necessary to have every appliance connected, but it is better if you can do so, although having one appliance of each kind connected will answer the purpose. It is absolutely necessary that one of each kind of water heaters carried in stock should be connected so that they can be demonstrated to prospective buyers.

The display room should be kept immaculately clean, and if you have the space, it is desirable to have a few chairs where women can sit down to rest should they be tired or ill when looking at your line of goods. Some companies fit up a rest room for the convenience of the public, and invite the ladies to make use of same for their meeting place. This has proven very successful in a great many cities.

Advertising

This is a subject that is well worthy of a paper itself, and I will not attempt to cover even a very small part of it. I do not think there is any chance to doubt but that newspaper advertising when followed up consistently, will bring results. It has proven so in all other lines as well as in the gas business. It is almost impossible to obtain an accurate check of the results to be ob-

Imported Pipe Confined to Sizes Not Being Manufactured in Canada

Market for Larger Sizes Not Sufficient to Make Manufacture Profitable to Canadian Firms—
General Conditions in Industry Not Yet Affected
by Recent Changes in U.S. Working Day

FOLLOWING a story appearing in the daily press recently of the arrival in this country of a shipment of thirty-eight miles of pipe from Scotland, for use in the gas system being installed in the city of Edmonton, conjecture was raised in some quarters as to why it should have been necessary to import this pipe when there are firms manufacturing pipe in Canada.

Enquiry of C. S. Webber, Page Hersey Tubes Ltd., however, elicited the information that this firm had sold to the city of Edmonton all the pipe needed in the sizes manufactured by the firm and that the thirty-eight miles of pipe from Scotland were all in 10 $\frac{1}{4}$ and 12-in. pipe, which sizes are not made in the Dominion.

"These larger sizes," added the informant, "are not made by us or any other Canadian firm, because the market we would have for such goods would not be sufficient to warrant our undertaking this work. Even as it is we find a limited field for the smaller, more widely used sizes that we manufacture, and have had to build up an export business that will help carry enough business to keep our furnaces going."

Speaking of the general conditions in the industry, Sanitary Engineer was

informed that the adoption of the eight-hour day in the steel industry in the United States had not been reflected in price changes or other market conditions to date. This official, who has recently spent some time in Pittsburg, the heart of the United States steel industry, made the assertion that he did not believe that the majority of the workmen, themselves, were in favor of the change, but that it was the result of an extreme minority who had advocated the eight-hour day as a matter of principle rather than as a means of bettering living conditions of the workers.

He found that the men in one plant had objected so strenuously to the new system, under which they would have a smaller earning power as individuals, that a strike was almost precipitated. Under the old system the men worked on an hourly rate and on a bonus for production. Under the new system, the new rate leaves their straight wage without much change, but their chances of earning a production bonus are so minimized as to become negligible, as it was only in the last few hours of the day that the production would reach the bonus mark, and with the day shortened it is not reached.

the industry, Sanitary Engineer was is demonstrated every day in the year. It is recognized to-day by people who should know, that newspaper advertising will bring the best results in our class of business. I do not mean to say that other kinds of advertising do not bring good results, for they all have their own value, and in special cases, might bring better results, but on the average, there is nothing that can compare with newspaper advertising.

Where you have a list of prospective customers, direct by mail advertising

proves successful. Do not think that your direct by mail literature will bring in the order, for it seldom does, but it puts the prospective customer in the proper frame of mind so that when your salesman calls upon him, he has already considered the matter, and has been partly sold.

It is claimed by many that direct by mail advertising will reduce the number of calls necessary to secure the order.

Billboard advertising is another method which is very good, providing the locations are right. One great trouble with most billboard advertising in the past, was that they contained too much reading matter. All billboard advertising should be short and to the point, and if possible should be illustrated so that a person can grasp the entire ad with just a glance, for in this day of speed and automobiles, a person only has a chance to give a fleeting look at them.

Theatre and church programs are not of a class that bring in the best value for the money expended, and do not think we should consider them as advertising. If you feel in duty bound to contribute to their support, I believe same should be charged to donations.

Window displays are very profitable method of advertising, especially if you

APPRECIATES PROMPT METHODS

Your prompt method of dealing with my subscription to Sanitary Engineer has been very gratifying to those most interested. I have, therefore, much pleasure in renewing my subscription to a magazine, the perusal of which has always been a source of much enjoyment. Wishing you every success.

H. P. SULLIVAN,
St. Catharines, Ont.

have a desirable location, and a properly constructed window. Your windows are worth at least half of your rent, so if you do not use them to advantage, you are losing money.

You all know to what expense the big merchandisers will go in fitting up and decorating their windows. Some change their displays every day, others twice a week, and practically all change at least every week, depending entirely upon the passers by.

Window displays should be properly lighted and left burning every evening until after the evening crowd has left the streets. You have all noticed how the people will stop to look at goods in a well lighted and neatly arranged window, whereas they will quickly pass by a dark or dingy looking one. The evening is the time when the public has the most leisure, and it is then their minds are most susceptible to impressions.

You will find it greatly to your advantage, if you can get a little life into your window, by having something moving in it. If you will try having a demonstrator cooking on a gas range situated in the window, you will be surprised at the number of people who will stop to look.

Another display that attracts considerable attention is to have your window fitted up with a bath tub and automatic heater connected. Then have a little colored boy in a bright bathing suit turning on the water and filling the tub, then letting it out. I have known of cases where this has attracted such a crowd that they have blocked the sidewalk.

Try the stunt of connecting an automatic heater in your window with a line running outside, so that passers by can open a faucet and see the heater in operation. Of course, you want the doors open, and suitably printed cards inviting the public to "turn the faucet and see the heater in operation."

There are any number of these live displays that can be arranged if you only think them out, and the cost is comparatively small.

Personal Solicitation

I do not know if there is anything that will obtain the results of personal solicitation. I do not only mean by the salesman who is out selling appliances, but by all employees who come in contact with the public, such as cashiers, fitters, meter readers, etc. Every employee of the company should be a booster, for a good word from them has far greater weight with the prospective customer than from the salesman who is trying to sell an appliance. If you can arrange some method of compensation, whereby an employee turning in a prospect, that is closed within a certain period, will secure a bonus or commission, you will find they will make it a point to talk gas appliance wherever they go.

Alkali in Soil Causes Corrosion of Water Mains in City of Winnipeg

Rapidity of Action Brings up Serious Problem—
Ordinary Cutting Tools Cannot be Used Efficiently
on Corrosion-Resisting Pipe—New Tools Must be
Invented to Make General Use Feasible

WINNIPEG, Man.—This city is looking for a manufacturer of water mains which will resist corrosion and at the same time not be too hard to be handled with tools, according to Prof. J. W. Shipley, who has been conducting investigations into iron-pipe corrosion for a couple of years past.

It has been found, the professor states, that iron pipe of this description in its unannealed state is very difficult to work with ordinary tools, and that the pipe cannot be used efficiently at present by the city for this reason. Not until more effective cutting tools have been invented will it be possible to bring the pipe into general use. However, if the demand for the pipe became general, no doubt it would lead to the production of the tools for handling it, it was intimated.

So the city, the professor explained in a recent lecture, has to use the centrifugally moulded pipe after it has gone through the annealing process. This makes it easy to handle, but also lowers its powers of resistance to corrosion. However, the centrifugally moulded pipe has advantages, for it is free from blow-holes and flag (foreign

material) and is also of uniform structure, light and inexpensive.

The professor showed on the screen sections of iron pipe, 250 times magnified, taken from River Avenue and other portions of the city. Some of the pieces of pipe had been corroded to such an extent that they could be cut through by a pocket knife. One of the definite conclusions drawn was that where carbon occurred in the iron in the form of graphite needles corrosion was greatest, and where it was combined as cementite and austenite it was least.

One of the admissions of the professor was that it was impossible to distinguish between corrosion caused by stray electric currents and corrosion caused by the action of soil.

It is stated, however, that corrosion from the former source is extremely slight as compared with corrosion by action of the soil, the amount of alkali in the soil in the vicinity of Winnipeg having given trouble this way on other occasions, it being recalled that steps had to be taken to draw off the moisture from the earth surrounding the cement aqueduct of the Greater Winnipeg Waterways in order to prevent the crumbling and rapid deterioration of the cement.

Outside salesmen are absolutely necessary to obtain any degree of success, but the question of population per salesman and compensation of the salesman, is something over which there is great difference of opinion. I believe local

conditions should govern in all such matters.

Time Payments

Have you ever investigated or stopped to think about how many people buy certain kinds of goods on time payments, who are able to pay cash for same if they only tried? It seems to-day that while the great majority of the people may want an article, they are not prepared to make any sacrifice in order to obtain same, and for that reason they will buy a great many things on time payments, just because they can pay it out of their monthly earnings or allowances.

A gas company is in a very fortunate position re the collection of time payment accounts, and for that reason loss of same should be very small. The secret of the time payment business is to watch the first three or four monthly payments and to get them in promptly, and the rest will be far easier. You will find where the first four payments are made promptly, the appliance is very seldom removed except for other reasons.

The smaller the initial payment, the more business it will bring in, but the lower the first payment, the closer you

(Continued on page 29.)

NEW OFFICERS CANADIAN GAS ASSOCIATION

The following are the new officers of the Canadian Gas Association, the sixteenth annual convention of which was held in Ottawa:

President—C. A. Jefferis, Toronto, Ont.

1st Vice-President—E. A. Hamilton, Halifax, N.S.

2nd Vice-President—Major J. J. Humphries, Montreal, P.Q.

Secretary - Treasurer — E. A. Hills, Toronto, Ont.

Executive Committee — J. P. King, Stratford, Ont.; J. S. Morris, Montreal, P.Q.; Arthur Hewitt, Toronto, Ont.; J. M. H. Young, London, Ont.; C. C. Folger, Kingston, Ont.; V. S. McIntyre, Kitchener, Ont.; A. A. Dion, Ottawa, Ont., and R. A. Wallace, Quebec, P.Q.

Instals Sixty Water Systems in One Year in Farm Homes of District

Belleville, Ont., Plumbing Firm Finds Specializing on this Line Brings Much Business—Paves Way for Sale of Labor-Saving Household Equipment—Three Bathrooms in Single Six-roomed Dwelling

PARTICULARLY in those cities and towns where the number of plumbers appears too great in proportion to the population, it is necessary for the firm that would be a leader to develop one or more specialties for which it will become well-known in the community. This has been the experience of the John Lewis Co. Ltd., Belleville, Ontario, where the installing of water systems in rural homes has been found to be a highly satisfactory specialty.

As has been pointed out in Sanitary Engineer, on numerous occasions, the number of farm homes in which there are any modern sanitary conveniences is low, leaving a large field for the progressive plumber who will go out after this business.

Wm. J. Doyle, manager of the John Lewis Co., is one of the men who is cashing in on this field, the firm having installed nearly sixty water systems in rural homes in the district surrounding Belleville during the past year as a result of Mr. Doyle's activities.

Numerous methods are used by Mr. Doyle to keep the advantages of water under pressure constantly before the farmers, one of the successful plans being the broadcasting of form letters at frequent intervals throughout the year. For this purpose the complete rural mail lists of the district are used as a mailing list, thus ensuring the reaching of every householder.

This same territory is covered in person by Mr. Doyle, following up tips regarding proposed building and buildings in the course of construction, which are secured through friends of the firm in many parts of the district, as well as following up enquiries received as a direct result of the form letters sent out.

Other Sales Follow

Of course, as might well be expected, the installation of a water system is but the first step. Then there is the sale of bathroom fixtures, water power washers, stationary washtubs, and other labor-saving equipment, which has long been denied the country housewife.

"Once you get the farmer interested in the installation of a water system, he becomes a good prospect for other equipment and goods," declares Mr. Doyle, who states in support of his claim that in nearly every instance last year where he sold a water system he also sold a complete outfit of bathroom fixtures, and in many cases much other goods. In fact, one farmer, owning a six-roomed house, became so enthusiastic over the proposition that he installed three bathrooms, one for each of the three bedrooms in his house!

Mr. Doyle is a firm believer in the value of a window trim which will faithfully represent a room as it will appear when properly equipped. To achieve this reproduction in its most effective form one of the show windows of the store has been converted into a small room, the window being made deeper by extending it back some distance into the store.

In the room thus constructed the complete fittings of a modern bathroom are

[illegible][illegible]

Autumn Weather

Calls for Plumbing Preparations

BRING YOUR PROBLEMS HERE WE'LL EXPERT

PLUMBING AND HEATING CONTRACTORS

Plumbing that Lasts
Time is the Judge

You should be very particular in choosing the plumbing bills you place carefully you will have one of the best and most reliable. Make no compromise in the way you may acquire eventually.

EXPERT PLUMBING

HEATING SYSTEMS
INSTALLED
TIGHTENING AND
REPAIRING
CUPBOARDS AND
SCAFES
PAINTS

APPLY FOR
BATTERY
BROS.
WHITE-CAP
PUMP
WASHER

Every house has a
Good Kitchen Sink

Most of the trouble with the kitchen sink is in the kitchen. It is in the kitchen that it will be used in the kitchen.

Make no mistake. We are the plumbing and heating service in the city. We expect to have

AGENTS

FOR

"Good Cheer"

WARM AIR FURNACES

Found at places

308
DUNDAS ST.

AGENTS

FOR

GILSON

PUMP
FURNACE

Chap. 1000 in Every House

PHONE
100 IN

O. J. MUNTZ

Are You a Judge of
Good Plumbing?

Let us show you work we can supply
with good service and a guarantee.
We are the only ones in the city who can
supply you with the best of the best.

ERSKINE-SMITH & CO.

PLUMBING AND HEATING
37 WIGMORE STREET, CAN. & 470

The adaptable window display as used by John Lewis & Co., Belleville, Ont., and described in this article, is shown herewith as depicting a complete bathroom scene. This firm find that showing the complete set of equipment as it will appear when installed is one of the most effective ways of securing the interest of prospects. This room can be readily changed into a kitchen or laundry. Read how this firm follow up prospects secured through the window displays.



shown, care being taken to secure a permanent effect of the set. At other times the room appears as a modern kitchen, complete with sanitary sink, porcelain-topped table, kitchen cabinet, and other up-to-date fixtures, secured from the hardware department of the store. At still other times, the versatile room takes on the aspect of a laundry, equipped with sanitary stationary tubs electric washer, and all the other labor-saving accessories.

Another means of securing the attention of the public, is through the medium of the daily press, and in this respect, too, the John Lewis Co. have kept well to the fore, their well-written advertisements bringing in many enquiries and a good percentage of direct sales.

In a large five-column advertisement run in one of the local newspapers recently this firm devoted practically full space to an outline of the advantages of water under pressure, heading the copy in large type "Water Under Pressure; Anywhere-Anytime."

This was followed by copy which read, in part: "To bring the Canadian farm home up to the standard of modern living conditions, water under pressure is of first consideration. With this feature, comforts and conveniences are possible that will make your home in the country attractive to the family, and they will enjoy their dwelling place beyond that

of any other spot on earth. It is essentially a time and labor-saving device.

"Electric water systems, operated by electricity from farm lighting plants, furnish the equivalent of 'city water pressure'—are economical, durable, and, when measured by the service they render, inexpensive. The engine driven systems furnish practically the same service as the electric outfits, except that they are automatic in stopping only.

"You can afford a water system because it is complete, no extras to buy, extremely simple to instal. We can make the necessary pipe connections in a short time, and beyond an occasional inspection, and a little oil twice a year, requires no care whatever.

"Your knowledge of farm machinery will tell you at a glance that this equipment has no complicated parts to get out of order. You can have water in the kitchen, wash house, bath room, toilet, in the yard, barnyard and stables. No buckets to lug, or sprinkling cans to carry—no pump handle to tire you out. You know the necessity of water; now think of having it where you want it, when you want it, at the turn of a faucet."

Two Lines Illustrated

Flanking this general sales talk which ran down the centre of the advertisement in good sized type, were two panels, each describing a water system

handled by the firm, one for a water service where the vertical lift is less than twenty-two feet, the other a deep well system. Both systems were illustrated by cuts.

Across the bottom of the advertisement, a general sales talk under the heading of plumbing, carried the following: "Every year our business in this branch shows a big increase. The reason is, we know, because we advance with the times, handle only up-to-date fixtures, installed under the supervision of M. R. Doyle, who will be pleased to give you advice or estimates free of charge.

"We judge our success not by the amount of business we do, but by the number of friends we make. We are not so much interested in a single sale as we are in making a permanent friend of every customer. We solicit your enquiries, no matter how small your job. We will give it our best attention. Out-of-town customers, use your phone at our expense."

Frequent use of advertisements along these lines have given the firm of John Lewis Co. Ltd., a standing in the district, so that whenever a man considers purchasing a water system, whether he has been directly canvassed by Mr. Doyle or not, he immediately calls to mind the fact that the Lewis firm specializes in this line and should be the people to deal with. So he goes there.

For the Early Fall Advertisements

More pressure— more fuel!

It takes greater pressure and more coal to force circulation in radiators from which air cannot escape. Good air valves mean prompt circulation and prompt heating.

More comfort and much less fuel needed, after a very modest investment.

Ask for detailed information and prices.

YOUR NAME HERE

Phone Number Address

How to Order Advertising Material

Advertisements in each issue will form a complete month to month advertising campaign for your use.

These are only a few of the electros available in this service. Complete catalog of all illustrations available to date will be mailed on request.

The catalog gives serial numbers on each illustration and the price is quoted. Prices range from 30 cents to \$1.00 for electros according to size.

In ordering from catalog write plainly the serial number of the illustration and send remittance to cover the order in order to save cost by avoiding book-keeping expense.

*By Courtesy, National Trade
Extension Bureau*

Comfort for Housewives



Most housewives have plenty to do without "firing up" or regulating dampers several times a day.

An automatic heat regulator makes this frequent attention unnecessary—and saves fuel by preventing over-heating or chilling of the house and still provide plenty of hot water.

The comfort and health protection they afford makes their installation a practical economy.

YOUR NAME HERE

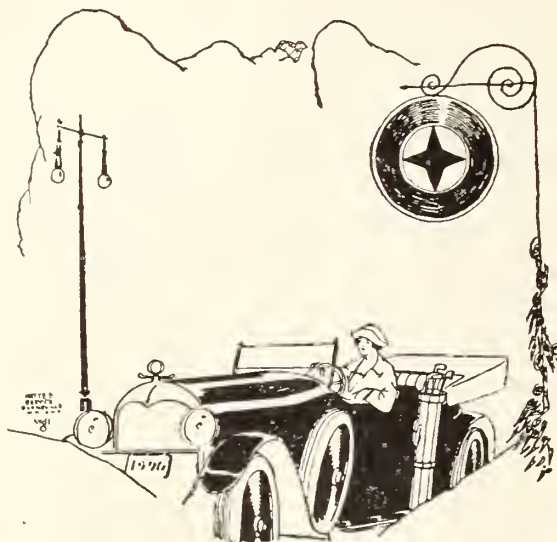
Phone Number Address

Filling Stations are more profitable

when they display a public comfort station sign. The sign signals the traveler to stop and enjoy the use and comfort of modern, sanitary plumbing facilities. Once stopped, what more natural than to buy some "gas"!

Public comfort station equipment is a profitable investment in building good-will — quickly pays for itself in increased, friendly patronage.

We specialize on planning inexpensive sanitary equipment for modern filling stations.



YOUR NAME HERE

Phone Number

Address

Cold weather discomfort

Don't you hate to get up early and go down the cold basement stairs to fire up as the price of dressing in comfort.

Automatic heat regulation will open the dampers before you get up and have the house comfortably warm at rising time.

Saves fuel, too! Let us tell you more about it.

YOUR NAME HERE

Phone Number

Address

Heat Regulation is Featured Early in the Fall Window Display

Two Novel Displays Featuring Heat Regulation Systems Which Should be Installed Now, and Sanitary Plumbing for the Kitchen

Window Display No. 121

THE public is always looking for some way in which they can economize on the fuel bill. Window display No. 121 is a good way to impress the value of heat regulation upon the public mind.

For the background, use strips of orange and black crepe paper about two inches wide twisted and hung as seen in photograph. The large Thermostat is made of wall board; shaped and painted to represent the make of Thermostat you handle. An eighteen-inch Scotch gauge-glass, one-half inch in diameter, is used to represent the glass in the thermometer. Purchase a hollow rubber ball about two inches in diameter and four feet of rubber hose. Cut a hole in the rubber ball to fit over lower end of glass tube. Now connect one end of hose to glass by running same through back of Thermostat, up through the rubber ball and into glass tube. Be sure that the tube fits the glass snug enough to prevent liquid from leaking out.

Place three pedestals as shown in photograph; drape some sort of yellow cloth over same. Now place Thermostat securely fastened on centre pedestal as pictured. Place an oscillating electric fan directly in back of Thermostat, on floor

of window so that it will be out of sight from the street. Attach loose end of hose to a cord, passed through a small pulley fastened to top of rear side of Thermostat; and down to another pulley fastened to the Thermostat at the same height as the guard of electric fan. Now attach the loose end of the cord to the guard of fan.

Pour bright red liquid of some sort, into hose connected with glass so that it will stand at 70 degrees on thermometer scale. When the fan is in motion, it will raise and lower the loose end of hose, thereby causing the liquid to rise and fall in glass, suggesting rise and fall of temperature. When the hose and fan are properly placed and adjusted the liquid should not rise above 70 degrees nor fall very far below 60 degrees. On each small pedestal place a Thermostat. Other heat regulating or controlling devices, air valves, etc., could also be shown, in connection with appropriate cards.

The cards in this window read as follows: "AUTOMATIC HEAT REGULATION SAVES FUEL BOTH DAY AND NIGHT." The two small ones read, "BELOW 60 DEGREES WHILE ASLEEP." "70 DEGREES DURING WAKING HOURS."

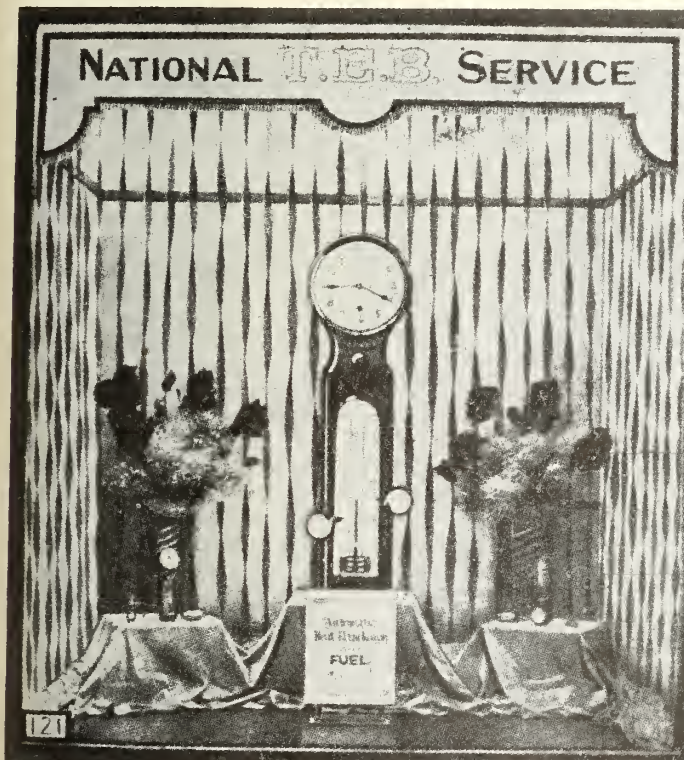
Window Display No. 122

Material for this type of display can be secured by looking through the copies of almost any month's issue of the nationally circulated magazines. Clip all ads in which modern plumbing or heating fixtures are pictured or described. Arrange them on the glass of your window as suggested in this display, after marking them with crayon pencil as shown. Place a modern kitchen sink, or any other fixtures you may wish to show, in window, as pictured in photograph, with all trimmings thereon, just as though it was actually installed.

Now, use two blackened Kewpie dolls and a box of Gold Dust to represent the advertisement you have often seen of "Let the Gold Dust Twins do your work." Arrange orange and black crepe paper around back and sides of the display to the front of the window, as shown in photograph; and the display is complete.

The card reads thus—Modern Sanitary Plumbing Completes The Comfort Convenience And Modern Refinement Shown in These Advertisements.

John Dykes, plumber and steamfitter, has opened a shop at the corner of Lock and Cedar Sts., at Dunnville, Ont.



Tinsmithing and Sheet Metal Work

Making a Success of the Sheet Metal Art

To Be Successful Sheet Metal Artist You Must
Know the Organized Facts About Your Business
—This is Why Sheet Metal Art is Far Above
Tinning

By J. C. GREENBERG

RELIABILITY is the cornerstone of human character. One must be reliable to succeed. No matter how much intellect you may have, how much knowledge of your work you may have, how much money you may have—if you are not reliable—you are a gifted crook.

Keep Your Promises

If you make a promise to anybody keep that promise. A bad job to a customer is a broken promise. A bad job is bad conduct, and bad conduct cannot inspire confidence. There are three things which enter into the field of successful business; they are quantity of work—quality of work and right mode of conduct. When these three elements are present, you need have no fear of competition whatever. These three elements constitute the principle of perfect service, and no one can ask for more—because there is no more to give.

When you give the right quantity of work—the right quality of work, and right mode of conduct, you have fulfilled your obligation with God and man.

Gives Clever Definition of Competition

What is competition? Some of you will say that competition is price. It is no such a thing. Competition is a battle of facts. If your competitor has a better stock of facts he is in a position to hold the customer's attention longer. He can interest him better—because he has more trumps in his business proposition than you have. That is all. The business man who runs out of facts must as a matter of self preservation attack the figures of his competitor. His ignorance of his business has caused him to resort to underbidding because he has no other defense to offer. The poor boob must pay for his lack of knowledge with his profits. What else can he do? The underbidder is an animal who seeks to rob the customer of good service, or rob the house he deals with of the amount of his indebtedness. He has no other alternative, because if he does work without profit he has no money left to pay bills. Non-payment of bills is unreliability, and unreliability is failure. There are no two ways about it.

Of course he may pay his bills—but he will starve to death. Either way you look at it, it spells failure.

Always remember this—the underbidder is always an ignorant business man and ignorance is weakness. Never fear a weakling, rather pity him. All you have to do is to get facts—use them—and success is yours. There is dignity in pride. There is dignity in good work. There is satisfaction in success. Success is impossible without profit.

When then is profit? Profit is the excess of money over the cost of production and selling—providing the difference is worth it to your customer. Just stop and think over this last.

Art is the skillful application of science, and science is organized facts in any endeavor. Therefore, to be a sheet metal artist you must know the organized facts about your business. The more you know and practice the better an artist you are. This is why sheet metal art is far above tinning. Or in other words, the tinner is not an artist.

You Are Working for the Public

Suppose I were to ask you "Whom are you working for?" you would promptly say that you are working for yourself. That you are a "boss tinner," because you employ men. Wrong again! You are not working for yourself. You are working for the public. The public is your boss. It can make you or break you—it depends on what kind of service you render. Yes, gentlemen, the public is the judge and jury as far as you are concerned as a business man. The public is your boss just the same as you are the boss of your men. If a journeyman falls down on his job—you fire him—and likewise if you fall down on the job with the public—the public fires you, and good night business.

The great question then is, how can we as business men please the public? The answer depends on yourself. You will get out of the public—just what you give it—not more and no less. This is the natural law of compensation.

We All Want Success

All human beings are very different from one another as a class. Every man has different ideas, different opinions, different judgments, different politics and different kinds of religions. But only in one respect are we all alike. There is only one thing in which we all tally—that is—we all want to succeed.

Everybody wants success, because success is the realization of the worthy ideal we cherish. In order to succeed we must serve right. He who serves best profits most.

Failure is Success Gone Wrong

Now then, since we are all alike in this one respect we can all adopt the same medicine as a cure. Failure is success gone wrong. Do you get that? To kill failure is to be successful. If a business man wants to succeed, he must establish confidence. Confidence is the bed rock of successful business—now listen well—confidence can only be established by knowing facts concerning your business. Remember, I said a few minutes ago that you must know all the organized facts about your business in order to succeed. When you tell a customer the truth, and show him undisputable facts he has a confidence in you, because the truth is undisputable. No man ever lived who could turn the truth into a lie.

Confidence Implies Reliability

The efficient man is he who does the right thing at the right time in the right way in the right place and in the right spirit. This is reliability, and unless you are reliable you are soon to give in to failure, because you cannot establish confidence without reliability.

I have mentioned organized facts several times, but did not say how these facts are attained. Where do we get facts? There are catalogs, trade papers, public libraries, salesmen, and best of all, association. Each of these avenues is valuable to the extreme. Do you use these avenues of knowledge in your business? Now be careful what you say—I have seen hundreds of sheet metal men who never open up a trade journal to see what it contains. I know many sheet metal men who do not know beans about the latest things in the trade journals.

They tell me that they have no time to read. Good lord—these men try to make me believe that they have no time to know their business, and to improve their service. Can you beat such a foolish road to business suicide? Just imagine the sadness of it all. The mail man brings these good things to his door, and they rot in their envelopes. No wonder some sheet metal men are failures, they turn down organized facts.

Reputation Grows With Knowledge

The sooner they wake up to the fact that knowledge is power, the sooner will they get out of the tea kettle and wash boiler line, and get real profitable work. The customers will not have the nerve to ask you to fix a ten-cent leak, because your reputation has grown with your knowledge.

Patterns for Knee Protector

Written for Sanitary Engineer by O. W. KOTHE, Principal St. Louis Technical Institute

A SUBSCRIBER wishes a layout according to sketches, of a safety device, and so I am enclosing the layout.

The hood can be developed by the parallel line method. So draw the side elevation to suit the measurements, as A-B as the height, with the angle line A-C, and the top line as C-D-F.

Now the angle C-D-F is bisected in point E which gives a true miter line, or a miter with equal bevels on each side.

Next describe the end view and divide in equal spaces as from 1 to 5, while 5-6 is a straight side and is left that way. From these points project lines to slope line A-C.

Then from these points continue the lines parallel with C-D and intersect miter D-E. After this again follow up your lines parallel to D-F until they reach the base line A-F.

Now by reason of changing the angle of the lines at A-C, which in this case crowds them together, we must develop a modified section through the line 1-6, which is drawn exactly square to C-D.

With dividers pick the half diameters from end view as lines 2-3-4-5-6 and set as 2-2'; 3-3'; 4-4'; 5-5'; 6-6'; which permits you to trace the shaded outline of modified detail.

Observe that, owing to the slant, point E is projected as E' in order to establish that point. This modified detail is the

truth girth outline for both gores M and N of elevation.

To set out the patterns, extend 1-6 as 1'-6', and then from E square a line at right angles to D-F as 1"-E". With dividers pick the girth from modified details as 1-2'-3'-4'-5'-E'-6' and set on these lines just drawn.

Draw stretchout lines, and project lines from each point in miter lines A-C and D-E, and E-F, until these lines intersect similar lines in stretchout.

Through these points sketch a uniform curve and you have patterns M" and N" finished. Laps for seaming must be allowed extra.

The correspondent has also a plan of bottom, but this will work itself out and will be of the same width as end view. At the finish F an oval shape will be developed when rolled up; but this cannot be helped owing to the miter cut F-E.

If the space E-F must be a semi-circle, then this piece N must be developed by triangulation, so the base will be built to the semi-circle.

HAMILTON PROPOSAL SHELVED

Hamilton, Ont.—The sewage disposal question appears shelved for the year, according to officials at the city hall. The matter has not been discussed for some time, the understanding being that at the first of the year a by-law

for at least a part of the work was to be submitted. It is prophesied now, however, that the question is to be laid aside indefinitely.

WESTERN ONTARIO NEWS

Bennett & Wright, Toronto, have contract for new steam heating system at the Mount Hope Orphanage, London, Ont.

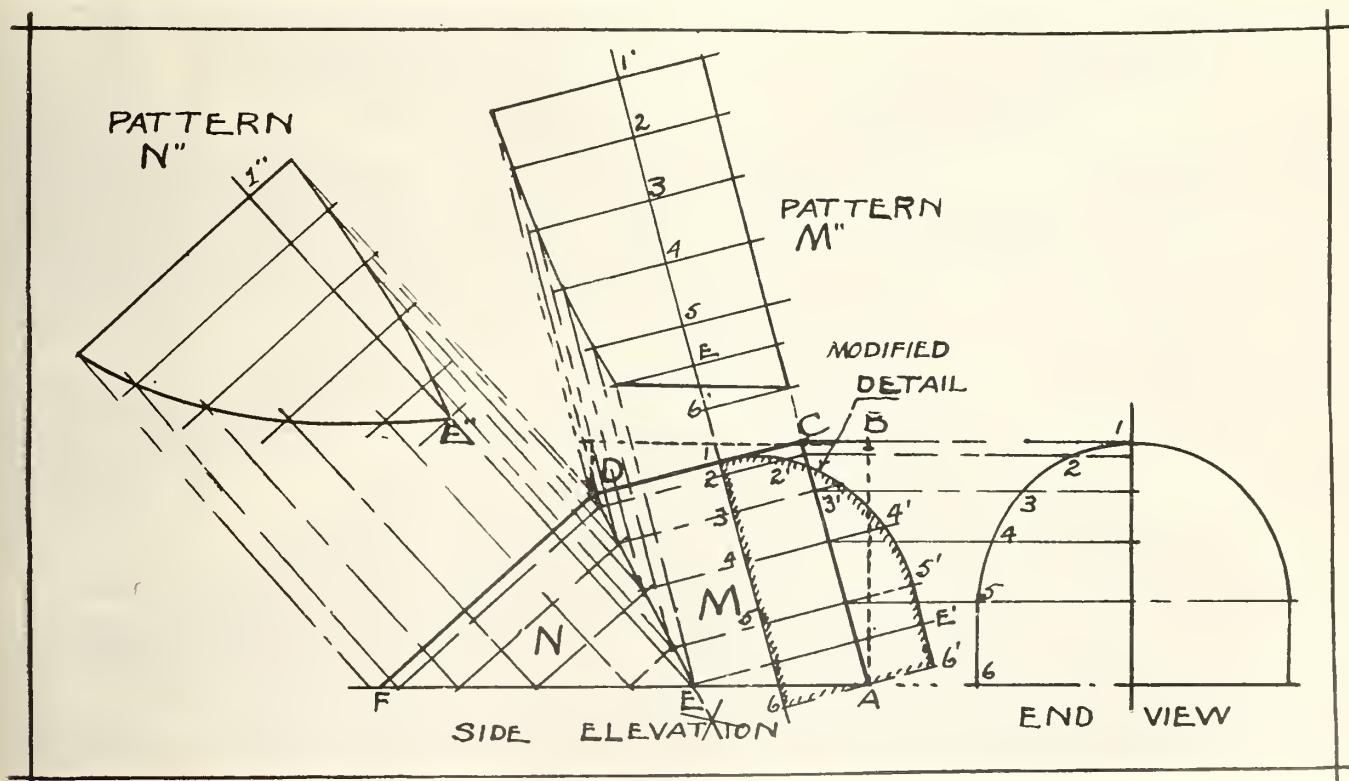
Eggett & Co., London, Ont., have been awarded plumbing contract in connection with new \$100,000 factory being built for Reid Bros., stationers.

A. Skelly, 242 King St., London, Ont., has been awarded plumbing contract in connection with new \$75,000 apartment building being erected by John Hayman & Sons.

The council at Port Colborne, Ont., is having plans prepared for the installation of a waterworks system, and prices will be wanted shortly on mains and equipment.

Tenders will be called shortly for new eight-roomed school at Port Burwell, Ont., and prices will be wanted on steam heating, plumbing, and ventilating equipment. W. G. Murray, Dominion Savings Bldg., London, Ont., is architect.

Bennett & Wright, Toronto, have been awarded contract for new \$40,000 central heating plant for John Hayman & Sons, London, Ont. Work includes a tunnel under street, and plant will heat group of apartment buildings.



Patterns for Knee Protector.

Heating and Ventilating Department

Method of Heating a Huge Canadian Arena With Oil Instead of Coal As Fuel

A Timely Description of the Problems Peculiar to the Heating of the Huge Arena and Its Annexes at the Canadian National Exhibition

By MELVERN F. THOMAS, M.M.E., Consulting Engineer, 229 College St., Toronto.

THE building known as the Coliseum at the Canadian National Exhibition, is 600 feet by 390 feet wide, consisting of a centre section called the Arena, 240 feet by 390 feet, and 54 feet in height on the inside, and the east and west annex buildings, each 180 feet by 338 feet, two stories in height.

The structure is symmetrical about its two main axes, and four towers rising to a height of over 100 feet form the corners of the Arena or centre section.

The walls are constructed of brick, the ground floor of concrete laid on the earth, the terraces for the seats in the Arena and the upper promenade at the rear of reinforced concrete. The second floors of the annex buildings, and the

entire roof, are constructed of wood supported upon a steel frame.

Figure 1 shows the south front of the Arena and a portion of the annex buildings, and the north elevation has a similar appearance.

Used Throughout Year

The Coliseum is one of the group of buildings in Exhibition Park. It is used throughout the year for many purposes, unlike many of the other buildings which are seldom used except during the Canadian National Exhibition.

In the west annex there is a large, completely equipped kitchen, with dining and lunch rooms, which can be put into service quickly to supply meals to meet any demand.

The large floor areas in the annexes

are used each year during Exhibition to house domestic equipment and during the Royal Winter Fair the west section is utilized for similar purposes and for the display of food products, while the east section houses exhibits of birds, fowls, small farm animals and cattle.

Last winter, these sections of the buildings were used for a furniture exhibit, extending over a period of two weeks.

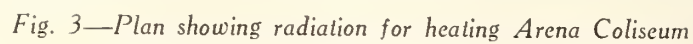
Space for 7,800 Chairs

The arena has an oval, 100 feet wide by 230 feet long, floored with cinders and covered with tan bark. Surrounding this oval, there is a concrete promenade, 12 ft. wide, from which the reinforced concrete terraces rise and furnish space for 7,800 chairs. This section of the building is shown in Figure 2, and has



Interior view of Arena Coliseum, Canadian National Exhibition, Toronto.

Fig. 5—Details of pipe-radiator on terrace and main control points in steam piping.



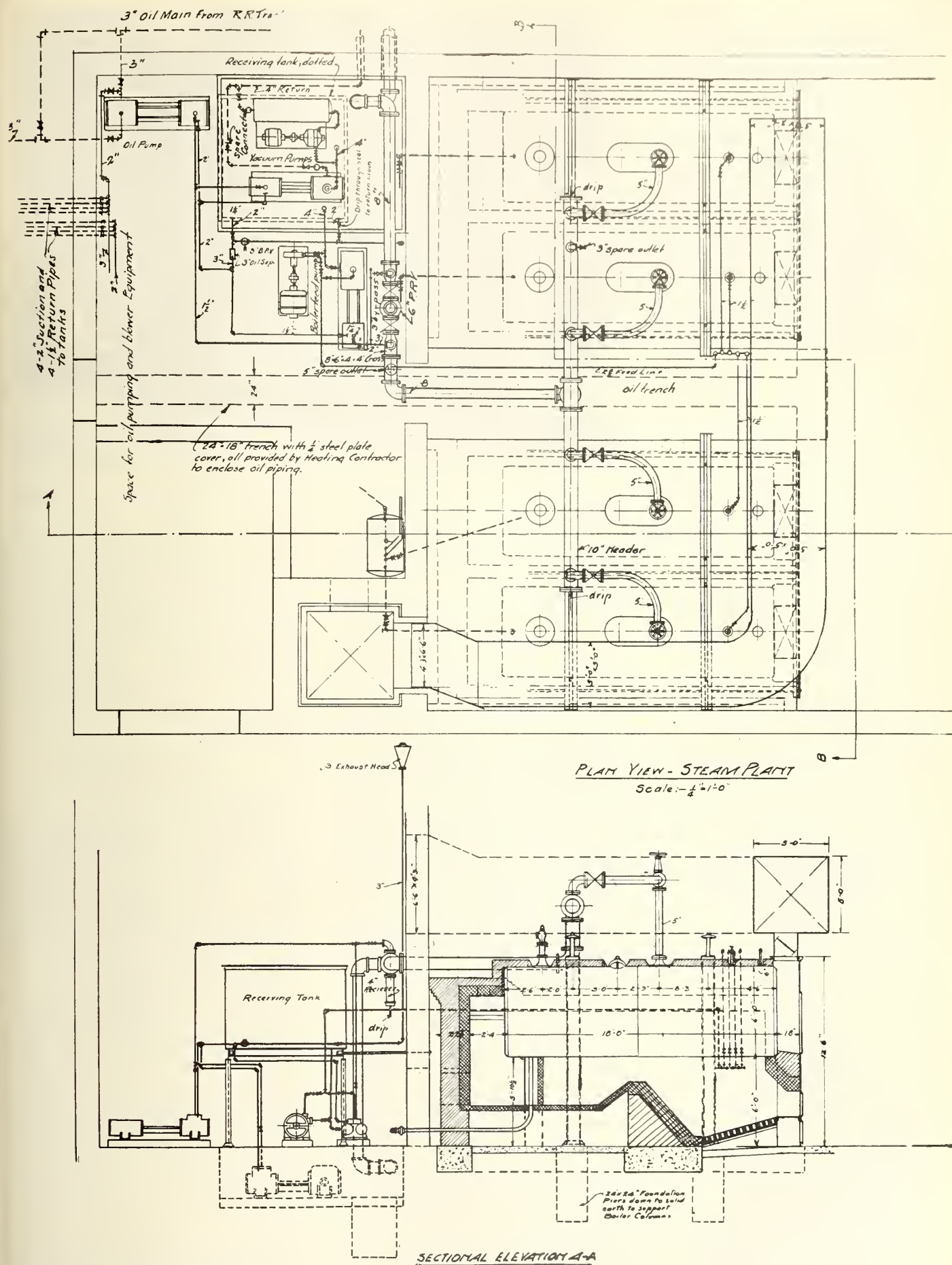


Fig. 5—Plan and section showing arrangement of equipment

radiation at the foot of the terraces and on the high level at the rear of the seats. There are four mains, each supplying one quarter of the Arena section, and these are controlled by valves which can be conveniently operated by chains from the ground floor level.

During evening performances, when the house is crowded, it is found desirable to anticipate the possible over-heating, and cut off practically all of the radiation immediately after the audience has assembled and then to gradually turn on the necessary heat to keep the building from becoming chilly.

The heating in the Arena could probably have been controlled by automatic thermostats, if funds had been available for a complete installation, although it would have been found difficult to locate the thermostats so as to control the different sections of the building at the proper time to prevent draughts or over-heating.

Steam Plant

A brick power house building, 46 ft. by 64 ft., with brick chimney, is located 20 feet from the east corner of the Coliseum. This building has a boiler room, pump room, and in addition, a room for housing the electric transformers for this section of the park.

The following steam generating and auxiliary equipment was installed:

Four 72 in. by 18 ft. H.R.T. boilers, constructed for 125 lbs. working steam pressure.

Four sets oil burners and furnaces.

One 5 ft. by 5 ft. smoke breaching, constructed of No. 10 gauge steel.

One 7 in. by 4½ in. by 8 in. duplex heavy duty boiler feed pump.

One "Westco" boiler feed pump, direct connected to a 10-horse power electric motor.

This pump has a capacity of 40 Imperial gallons of water per minute against 150 lbs. pressure, and is controlled by a push button operated contactor.

One 10 in. by 12 in. by 12 in. steam operated vacuum pump.

One 65,000 sq. ft. capacity Jennings electric motor driven vacuum pump.

One 8 in. by 6 in. by 8 in. duplex general service oil pump.

This pump is used to draw oil from the tank cars in cold weather and to transfer oil from one tank to another when desired, and the piping is also arranged so that it can be used to supply the oil burners, should the other units be out of service.

One Albany oil pump with direct-connected motor to supply burners.

One small duplex steam driven oil pump to supply burners.

One Sturtevant positive air blower, operated by motor to supply air under pressure for starting the oil burners when there is no steam pressure.



Partial view of boiler room with Jack Thomas, operating engineer, in foreground

The general arrangement of the equipment is shown on Figure 5, except that the oil pumping and distribution apparatus is not shown.

The plant was designed to allow one reserve boiler, where all the heating system is in operation, and to have duplicate pumping and auxiliary equipment.

Oil as a fuel was selected, because of its convenience, small amount of labor, quick starting and stopping, easy regulation, and convenient storage underground, where it does not detract from the appearance of the park.

Four cylindrical steel tanks, having a total capacity of 48,000 Imperial gallons, were placed underground near the power house and piped so that oil from tank cars on the siding, 300 feet away, flows by gravity to the storage tanks, or if the oil is slow in running in cold weather, the large service pump is used to empty the tank car.

A system of piping from the tanks to the pump room allows oil to be transferred from one tank to another and to be supplied to the burners from any one of the tanks.

Two Cunerty Burners

The oil burning equipment consists of two Cunerty air or steam atomizing burners in each furnace. These burners operate satisfactorily with an air pressure of 3 to 5 lbs. per sq. in., or with low pressure steam. At this plant the air is used as a means of bringing up the steam pressure on one boiler, after which steam at a reduced pressure of 15 lbs. is supplied to the burner and there further throttled to give the desired rate of combustion.

An important feature of the oil burning furnace in this plant is a fire brick grate through which the air to support

combustion is allowed to pass. This, however, is not necessary to prevent smoke, as it was found possible to obtain a perfectly clear flame immediately when starting the burners in a cold furnace. The oil burning equipment has proven satisfactory, and can be easily regulated by using one burner to give less than 25 per cent. of the capacity of the boiler, or by using both burners to exceed the over-load capacity of the boilers and force the water out through the steam piping.

Distribution System

The boilers are operated at 75 to 100 lbs. gauge pressure.

The power house steam piping consists of the ordinary layout of a main header, connected to each boiler with a double system of valves, all of extra heavy material. To the header are connected branches to the various services. There is a small amount of steam distribution to the milk testing building and to four barns. These have separate pressure reducing valves and connections.

The main steam supply for the Arena and annex buildings passes through a primary pressure reducing valve, and is delivered to the mains at a pressure of 5 to 20 lbs., as is necessary to supply the demand.

The pipes pass underground through steel casings covered with concrete, from the power house to the east annex building where they enter a tunnel which extends 496 ft. under the east annex and Arena building.

Branch mains rise from this tunnel and extend to four main distribution points in the east annex and Arena, and from the end of the main a main rises to serve the old heating system in the West Annex. At the distribution points,

secondary pressure reducing valves are installed and the pressure of the steam reduced to 1 to 5 lbs. as is required to supply its demand under any given existing load condition.

The low pressure steam is distributed around the ground floor ceiling, and at each distribution point there are three main valves fitted with sprocket wheels and chains so that they may be conveniently operated from the floor.

The distribution system to the radiation is in accordance with ordinary standard practice for a vacuum heating system, arranged generally so that the condensation will flow in the same direction as the steam to definitely determined drip points.

Each radiator and drip point in the piping is controlled by a thermostatic trap and the drips from the medium and high pressure piping are generally controlled by bucket type traps.

By-Pass Saves Time

It was found that too much time was required to clear the underground main through an ordinary trap when the system was being started up quickly, so to allow the large volume of condensation and air to pass quickly into the return piping, a 2-in. by-pass was provided to be operated by an attendant, who "stands by" until the main is clear, when steam is to be turned on quickly.

Of course, under ordinary conditions, the steam would be turned on to the main slowly, and time allowed for the vacuum pump to clear the system through the drip traps.

Of the radiation return piping, 2,800 ft. is located in tar-coated wood boxes below the concrete floor. All of this piping is supported on rollers, clear of the enclosing boxes, and is extra heavy, genuine wrought iron. The main return pipe is located in the pipe tunnel and passes through a steel-lined pit in the pump room, where it is connected to the vacuum pumps. The vacuum pumps discharge into a large receiving tank located overhead, and from this tank water flows to the boiler feed pumps. When the steam vacuum and boiler feed pumps are in operation, the exhaust steam from them passes through a coil submerged in the receiving tank, where practically all of it is condensed and reclaimed.

The total radiation in the Arena and two annex buildings, is approximately 48,000 sq. ft., to which must be added about 10 per cent. for uncovered and partially covered piping included in the computations as a part of the heating system. In addition to this load, there is about 2,500 sq. ft. of direct radiation in the barns and milk testing building, and during the Royal Winter Fair, there is a heavy load for heating water and for washing stock.

A Rush Job

The writer was instructed on July 14 1922, to prepare plans. Contractors had access to the plans on August 3, 1922,



Fig. 1—Exterior View of Coliseum.

and submitted tenders on Aug. 10. The contract was at once awarded to Purdy-Mansell Ltd., under an agreement that the system should be ready to operate for the Royal Winter Fair on Nov. 22 of the same year.

That the work could be planned and installed, and put into operation within such a brief period of time, was due in large measure to the constant co-operation between the Parks Department, representing the City of Toronto as owners, the contractor, and the engineer.

Canada Produces 88 Per Cent. of World's Asbestos

Canada produces 88 per cent. of the world's supply of asbestos, all from the mines of southern Quebec. Last year

over 160,000 tons of asbestos was sold and shipped. To secure this amount of fibre nearly three million tons of rock were mined. Heretofore practically all the manufacturing of asbestos products has been done outside of Canada. This condition, however, is being largely overcome by the erection of factories in the asbestos districts for weaving and otherwise developing the product. The chief uses of asbestos are in the manufacture of fire-proofing materials, insulation for electrical equipment, and for pipes, furnaces and boilers in heating plants. With the growth of the automobile trade asbestos has found a large use in the making of brake linings. Canada's export trade in asbestos last year amounted to \$621,000, over \$600,000 of which went to the United States.

New Goods of Interest to Plumbers

QUICK OPENING RADIATOR VALVE

The Galt Brass Company Ltd. of Galt, Ontario, have placed on the market a new line of quick opening radiator valves. This valve is made in all sizes ranging from ½ in. to 1¼ in. and can be supplied with or without the union and union elbow.

These valves are claimed by the manufacturers to be accurately and stoutly made of high grade metal and that they carry the same guarantee as other lines of goods made by this firm. They also claim that this new article is well finished and that it is a great improvement over the old styles of valves, in so much as, that it can be turned on or off without giving the handle more than one full turn.

PLUMBING FLOAT WINS PRIZE

St. Catharines, Ont.—Second prize, in a recent holiday parade, was won by Charles H. Hoople, local plumber, whose float was made up so that one side represented a modernly-equipped bathroom and the other side an up-to-date kitchen.



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"Digging Their Own Graves"

THE story is told by William J. Woolley, secretary of the National Trade Extension Bureau, of his meeting an old friend at an Eastern hotel. The friend had been sent to that city as a high powered promotion man capable of conducting a four weeks' sales drive for distribution, by a newly organized manufacturing concern. While waiting to give an order for breakfast the salesman pulled a memorandum index from his pocket and showed a list of calls that he had laid out for that day. The list included some rather "hard-boiled" merchants, and, as Mr. Woolley says, it occurred to him that by the time his friend had seen the last man on the list he would feel he had done a real day's work.

Then he ordered his breakfast, consisting of half a grape fruit, oatmeal and cream, griddle cakes and syrup, a small steak, potatoes, rolls and two cups of coffee. He was late for his first appointment, so he half chewed this young Thanksgiving dinner and was gone. That evening Mr. Woolley called at his room and found that the salesman was not feeling well. He had developed a headache during the morning and "knocked off" at three.

"Digging one's grave with his teeth," as Mr. Woolley puts it, is a very dangerous practice with everyone. The subject also suggests the protection of salesmen's health from a sanitary standpoint involving adequate bathing facilities. It indicates plainly the great loss of time and money which is involved for business firms represented by salesmen as well as for the community on which they call, where inadequate sanitary facilities are provided to assist in maintaining their normal standards of health. This is a phase of the question of sanitation which might well be emphasized by sanitary and heating engineers in their promotion work.

* * * *

A Scientific Calling

THE recent action of the National Association of Master Plumbers of the United States in voting to establish scholarships for courses in sanitary engineering at various universities throughout the country is significant of the change which is coming in this industry. Those who attended tell of the thrill which was occasioned among the delegates when it was established that this proposition was about to be put over. In order to fully appreciate what this move means it needs only to look back over the last few years and see what the attitude of the sanitary and heating engineer has been toward the college man.

Most of our present successful operators came up from the ranks and as one college professor put it, they have been

of the type which "have murder in their hearts when they see a college graduate." When the matter was up for discussion at the convention there were rumors that the scheme smacked a little of exclusiveness and might well give way to a more comprehensive plan of wholesale training of young men through apprenticeship schools. It was felt, however, by the more far-seeing delegates, that there was great need for this industry to carry more weight, it being pointed out that during the war when the government was wanting experts to supervise the installation of sanitary equipment in the camps that the plumbers as a representative body were not called in, it being the feeling that the association did not possess the necessary talent within its ranks.

There will be many advantages of having college trained men to whom members will be able to turn for technical information and advice and the establishment of scholarships in plumbing will be a notice to the world that this industry believes in itself as a scientific and technical calling worthy of the ambition of any young man. This should help in giving the industry such a tone that it will attract the desirable type of young man.

* * * *

The Fuel Problem

AT A TIME when thousands of householders are pondering the problem of next winter's fuel supply, the U.S. Department of the Interior calls attention to the results of tests recently made by the Bureau of Mines which demonstrate the high efficiency of by-product coke. Tests conducted by the Bureau with different types of steam boilers suitable for heating 7 or 8-room houses recorded as high efficiencies with by-product coke as with anthracite. The efficiencies obtained with bituminous coal were 8 to 20 per cent. lower than those obtained with coke.

The anthracite used in these tests was a mixture of egg and nut sizes and was considerably cleaner than that ordinarily obtained in the Pittsburgh market. The by-product coke tested at Pittsburgh was of domestic size, made from a mixture of several coals from the Klondike region near that city. The by-product coke tested at Minneapolis was of domestic size and made from eastern coal.

With the same attention to the fire, the Bureau of Mines found that coke gives much more uniform temperature than bituminous coal. In addition, coke is a clean fuel and makes neither smoke nor soot, an advantage difficult to express in exact figures. It is nearly as good a fuel as the domestic sizes of anthracite, and if anthracite is unavailable at reasonable prices a by-product coke makes a good substitute.

* * * *

Most Prosperous Country

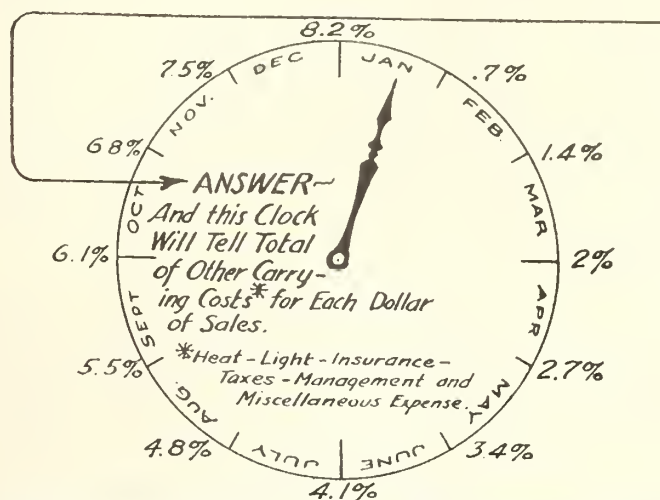
SOMETIMES it requires an outsider to give us the right perspective on the situation, and herein Canada gets a hearty recommendation from Herbert Hoover in a message to exporting manufacturers of the U. S. in which, after warning that the chief talk of fluctuating exchanges, trade barriers, Bolshevism, etc., centres in Europe, he goes on as follows: "Canada should show excellent returns for 1923 as it is probably the most prosperous country in the world. Her exchange handicap has disappeared, and we have even found it necessary to send more than eighteen million dollars in gold across the border, when her funds were at a premium. The speed of Canada's recovery can be judged when it is remembered that on July 31st, 1920, the exchange stood at \$9.28."

How Long Were the Goods in Your Shop ?

Minute Message No. 27

Written for Sanitary Engineer by FRANK STOCKDALE

Profit Figuring Series



Substitute Your Own Figures. The above amounts are from a Store with Two Stock Turns, Other Carrying Costs 4.1%

HERE "All Carrying Costs"—Rent, Interest, Depreciation and other carrying costs—have been brought together in one chart which shows the total carrying cost on any item or line or department—if you know how long you carried the goods in stock.

Notice how near the carrying cost is to the round figure of 2% a month. It is really remarkable how close to 2% is the carrying cost in the average retail shop, no matter what line of merchandise is being handled.

It is not intended, however, that you should take an arbitrary figure like 2% and apply it to your business. The best figures to use in your business are YOUR figures. It is just as easy, and naturally more accurate, to build a chart from the actual figures as shown in your own expense account.

The purpose of these charts is to show a principle of profit analysis which can be applied to any business anywhere and at any time.

Plumbers want to know the profit—net profit—which each line makes or the loss they must meet, as the case may be. These charts point the way to discovery of this vital information.

THINK IT OVER—APPLY IT TO YOUR BUSINESS

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in the Plumbing Trade in Canada.

News Notes From Coast to Coast

Doings in the Plumbing and Heating Industry

NEW BUSINESS

H. G. Loewen has opened a tinsmithing business at Winkler, Man.

PARTNERSHIP DISSOLVED

Montreal, P. Q.—Announcement is made of the dissolution of partnership in the firm of Leggett and Owen, plumbers.

MOVED TO SWAN RIVER

Durban, Man.—R. S. Riddell, who has conducted a tinsmithing business in this town for some time, has moved his business to Swan River.

SEWER INSPECTOR APPOINTED

Elmira, Ont.—Charles Harman has been appointed sewer inspector, succeeding Simon Moyer, who was unable to continue in that capacity.

CONTRACT AWARDED

Vancouver, B. C.—The contract for installing heating equipment in the new city garage, Union Street, has been awarded by the city council to Barr & Anderson.

MUELLER SALESMEN CONVENE

Sarnia, Ont.—Mueller representatives from all over Canada attended the annual meeting at the Sarnia plant. Apart from the instructive papers and addresses given throughout the week, a thorough course of sales instruction featured the gathering. Entertainment was in charge of the newly-formed athletic association of the plant.

TEMPORARY APPOINTMENT MADE

Medicine Hat, Alta.—Upon recommendation of the Board of Health, the city council has decided to combine the offices of sanitary inspector and plumbing inspector. The temporary appointment of James Henderson to fill the post was made; this to be made permanent when Mr. Henderson has qualified to pass an examination by the Provincial Sanitary Institute.

PLUMBERS HOLD PICNIC

Hamilton, Ont.—The annual outing, held under the auspices of Local No. 67, International Plumbers' and Steamfitters' Union, at Dundas Driving Park, was highly successful. Besides the journeymen and their wives and families, a large number of master plumbers and representatives of the wholesale plumbing houses took part in the affair. The baseball game, played by teams representing the plumbers and steamfitters, ended in a tie.

ACUTE WATER SHORTAGE

Vancouver, B. C.—Water shortage from the prolonged drought is causing hardship in the northern part of the province. At Inverness the supply was entirely exhausted, but tank cars filled with water were promptly shipped in.

CONTRACT IS AWARDED

Kamloops, B. C.—The contract for the extension of the heating system of the Royal Inland Hospital, so as to take in the isolation hospital, has been awarded by the city council to the Kamloops Plumbing & Heating Company, whose tender totalled \$928.

GAS RATE REDUCED

Oshawa, Ont.—Announcement that the gas rates of this town are to be reduced from \$2.15 to \$2.00 per thousand cubic feet has been made by the Hydro Electric Power Commission, with strong probabilities of a further reduction, dependant upon the fuel situation.

LARGER QUARTERS NEEDED

Toronto, Ont.—The Sepco Automatic Electric Heaters Ltd., who have been located at 47 Richmond St., East, Toronto, are moving to 39 Richmond St., East, where they will have the advantage of larger factory and warehouse space and showrooms, made necessary by the increasing business of the firm.

MISTAKEN IDENTITY

Toronto, Ont.—Through an unfortunate circumstance, it was announced in the August 15 issue of Sanitary Engineer that David Wing, who conducts a plumbing establishment at 1133 Dufferin Street, was a Chinaman, this misleading idea being secured from a business card issued in Chinese by Mr. Wing, who does a considerable trade among the Orientals of the city.

WANT INSPECTION BY EXPERT

Toronto, Ont.—After hearing Reeve Jury's evidence regarding faulty plumbing in a number of houses on Bungalow Rd., and Stanhope Ave., York Township, Judge Denton has proposed that an expert plumber be appointed to inspect all houses in question. The plumbers who installed the plumbing; Plumbing Inspector McGowan who approved it, and Superintendent Hughes of the Plumbing Department will accompany the expert on his tour of inspection.

PERSONAL

F. C. Hamilton, manager of the Canadian John Woods Co., Toronto, Ont., who has been confined to his home through illness, is showing a much improved condition.

BARRIE'S WATER SUPPLY TREBLED

Barrie, Ont.—The town's water supply is now 1,269,000 gallons a day or more than treble what it was before the two new wells were drilled, at which time it was about 350,000 gallons a day.

INSTAL VACUUM HEATING SYSTEM

Toronto, Ont.—The Coca-Cola Company's new building in this city will be equipped with a size C Jennings Duplex hytor-vacuum heating pump and a Sims storage heater, through Arthur S. Leitch Co.

PIPE FROM SCOTLAND

Edmonton, Alta.—Construction of the main line from the Viking gas field as well as the distribution lines throughout the city is being rushed ahead, and approximately forty miles have been completed. A large shipment of pipe from Scotland is expected to arrive at Vancouver about August 20, the shipment including thirty-eight miles of pipe, 12-in. and 10½-in. in diameter, which will be used for the main line.

WILL GRANT FRANCHISE

Winnipeg, Man.—After numerous sessions and many hours of discussion on the granting of an electrical heating franchise to B. W. Barker, who plans to erect an electrically-run central heating system for a portion of the city, the City Council has at last reached the point where it has been practically agreed that a franchise of some sort will be granted, although its nature is not yet very definite, numerous clauses of the proposed agreement having being referred back to the solicitor for revision.

WANT JOINT SEWERAGE SYSTEM

Bridgeburg, Ont.—A joint conference of Bridgeburg and Fort Erie councils is to be held to straighten out a tangle that exists in regard to the project, as advanced by the Provincial Board of Health, by which Fort Erie will link up with Bridgeburg's main sewerage system. The original agreement called for a payment of \$800 a year by Fort Erie, this sum being later reduced to \$500 for three years, but the question of cleaning expenses has caused a deadlock. Both municipalities are anxious to go ahead with the project as it will also mean sewerage connection for Amigari, now divided between the two places.

URGE CLOSER CO-OPERATION

(Continued from page 13)

must watch the account for the first few months.

Demonstrations

There is a question as to how large a city should be to warrant demonstration expense, but some of the medium-sized companies seem to have better results with these demonstrations than the larger companies. Some of the smaller companies have had very good results in conducting a public cooking school lasting one or two weeks. Some companies run them under the auspices of their leading newspaper which co-operates with them, giving them considerable publicity, and it does not appear to be as much of an advertising proposition. In conducting such a school, great care must be taken to secure a demonstrator who can talk and retain the interest of her class, as well as understanding her work thoroughly. Chicago is having wonderful success with their department of home economics, but, of course, they go at it on a scale that none of us could afford.

Practically every company can at least afford to have a demonstrator call on every consumer once a year, to see if the appliances are properly adjusted, if they understand thoroughly the use of the ovens, and to give any information re baking and care of range that may be required. It is far better to have a woman for this line of work, for she will be able to obtain information that no man could get. A woman would far sooner deal with a woman when it comes to anything pertaining to cooking. We have this same woman follow up all installations of ranges, to see that the burners are properly adjusted, working satisfactorily, and also to give any information regarding the use of same that may be required.

Special Sales

All successful merchants put on special sales at times to boost their business and even sell goods at cost or less than cost to get people into their stores, but a gas company cannot adopt these principles without causing considerable bad feeling. Methods that are considered very good business when conducted by a retail merchant, are condemned when carried out by a public utility.

The Sales Stimulation Committee of the A. G. A. have during the past year sent out some very good reports, re gas sales promotion and special sales, which are well worth following up. Their report for July and August is an especially good one for it pertains to the elimination of old and obsolete appliances. They recommend an allowance to be made during these two months for old appliances, the amount to be applied toward the purchase of a new and modern one. By doing this you remove an obsolete appliance from your lines which in itself is a very good thing, for the

consumer does not generally blame the appliance when they do not obtain satisfactory results, but condemns the quality of the gas or the gas company's service.

Some companies have stimulated sales during the dull period by giving special prizes with each range or water heater sold. There is a paper to be read at this meeting covering this subject so will not go into details.

Many companies give special easy terms by making the initial payment very small. They contend that it is far better to hold good paper than stock, and it also keeps your organization together and running smoothly.

If we would check up the appliances in use in any city we would find there are considerably more ranges in use than water heaters. This water heater business is what we must bear in mind for it is really the cream of the business. Our investment in mains, services and meters are already made so we do not increase same when adding a water heater to our line.

Let us all make up our minds that wherever there is a gas range, we are going to instal a water heater, instantaneous or storage if we can, but if not, at least a tank water heater which is stepping stone to something better.

**QUITE ENOUGH**

"Pearl swears she's never been kissed by a man," a clerk informed Assistant Manager Statler in the Buffalo Statler.

"Isn't that enough to make any girl swear?" was his comment.—S. E.

* * * *

SERIOUS

Weary Willie: "Things ain't what they wuz."

Tired Theodore: "Nan! Here lately a feller can't hardly ask fer work fer fear o' gettin' it."—S. E.

* * * *

AN ACCIDENT

"How do you happen to be in prison?"

"It's the result of an accident."

"You ran over some one with your motor-car?"

"No, ma'am; I fell over a chair and woke the owner of the house."—S. E.

* * * *

ABSENT MINDED

"Where is the car?" demanded Mrs. Diggs.

"Dear me!" ejaculated Professor Diggs. "Did I take the car out?"

"You certainly did. You drove it to town."

"How odd! I remember now that after I got out I turned around to thank the gentleman who gave me the lift and wondered where he had gone."—S. E.

MISSED THIS ONE

The book of etiquette tells you almost everything except the graceful way to retrieve the roast from a guest's lap.—S. E.

* * * *

VERY MUCH

European diplomats are reminded that between an idea and ideal there is a "l" of a difference. S. E.

* * * *

KEEP MOVING

"How much did you ever get out of your car?"

"Well, I think seven times in one mile is my record."—S. E.

* * * *

IN THE NECK

Ike Does your father have to pay much for coal?

Mike—Not a cent! We live near the railroad tracks and he makes faces at the engineers.—S. E.

* * * *

SUPERIOR

He—"Why do you consider women superior to men in intelligence?"

Her—"A bald-headed man buys hair restorer by the quart, doesn't he?"

He—"Er—yes."

Her—"Well a woman doesn't waste time on hair restorer; she buys hair."—S. E.



Following items are reproduced from the MacLean Publishing Co. trade newspaper files of August, 1903:

"H. J. Boyce, plumber of London, Ont., has sold out to W. J. Green."

"Mahoney Bros. of Guelph, Ont., report brisk business. The firm are now doing work at the Western and Priory Hotels."

"A. A. McMichael, vice-president the Jas. Robertson Co., Ltd., has very generously donated a cup to be contested for at the Oakville picnic of Toronto and Hamilton operators by the rival baseball teams."

"Bennett & Wright Co., Ltd., are busy doing quite a large job at the Normal School, Toronto. They are also carrying out a large contract for F. Nicholls at Shanty Bay. Other contracts are being completed on Collingwood boats and library building."

"One of the early enthusiastic members of the Master Plumbers' Association was W. J. Burroughes, formerly of Toronto, now of London, Eng. Mr. Burroughes accompanied by his son recently paid a visit to his old Toronto home and dropped in on a lot of his former fellow craftsmen."

"The action of the soil pipe manufacturers in discontinuing the manufacture of light soil pipe is meeting with the hearty approval of the trade. Cities and towns that have adopted by-laws have prohibited the use of light soil pipe, no doubt because of the belief that pipe of that make is unreliable."

"A very large meeting of the Toronto Association took place in their rooms when T. E. Hoar & Co., Toronto Junction, connected themselves with the association. Plans were made for a joint picnic with the Hamilton association at Oakville on August 12. The services of Harry Mahoney, National Vice-president, as umpire, have been secured."

"There is a noticeable fact of a very striking nature, that is the better feeling that prevails among plumbers and steamfitters, the one for the other. But a short time ago one had not to be long in the company of a master plumber before he would hear a bitter remark made by the plumber against his competitor but this appears now to be changed."

Market Conditions and Tendencies

Price Trend on Sanitary and Heating Supplies

Markets at a Glance

DURING the past two weeks, many lines of goods have had better sales than were experienced during the early months of the summer. Among other lines, lead and zinc goods, closet combinations, soil pipe and fittings, compression goods and pipe fittings are outstanding in the list of good sales.

Declines this week have occurred in the prices of some lines of laundry tubs, compression goods,

ground keys stops and wastes, and bath cocks and compression stops, in most centres, and in Winnipeg, solid brass bathroom hooks and force cups have taken lower price levels, while tap plugs have been advanced slightly.

Some declines have been made in the scrap materials market prices in Montreal, and in this line the market has been very dull.

Collections show a slight improvement.

Montreal Markets

MONTREAL, August 30.—Prices which have been in effect for some little time back have been maintained almost without exception during the past two weeks. A change of some note is to be found in the scrap metal market where much easier quotations are noticed on several metals, following the trend of the primary markets.

Trading in some lines shows quite a steady improvement, while in other lines dealers report quite a dullness. Fall business is now commencing and dealers generally are looking for a great improvement in all lines.

SOME LINES OF SCRAP

TAKE BIG DECLINE

Montreal

A weakness is noted in practically all lines of scrap material, yellow brass, red brass, light copper, wrought iron, malleable scrap, heavy melting steel, No. 2 busheling boiler plate and No. 1 machinery cast all showing a decline. Rubber, zinc and lead scrap remain firm. Average buying prices of local dealers are as follows:

SCRAP—	
Automobile Tires	0 50
Rubber Shoes	0 02
Yellow brass	0 06½
Red brass	0 08¾
Light brass	0 04½
Scrap zinc	0 05
Lead, heavy	0 05
Lead, tea	0 03
Light copper	0 09½
Heavy copper	0 11¾
Wrought iron, R. Rd. No. 1 per gr. ton	14 00
Malleable scrap (ton)	16 00
Pipe scrap (ton)	8 50
Heavy melting steel	9 50
No. 2 busheling	5 00
Boiler plate	12 00
No. 1 machinery cast	20 00

BAR PRODUCTS SHOW NO

PRICE ALTERATIONS

Montreal.

A steady activity continues in the local bar product market. prices have undergone no price alterations for some time, remaining at the following levels:

IRON AND STEEL—	
Common bar iron, 100 lbs.	3 95
Refined iron	5 45

Irish finish machinery steel	4 60
Mild steel	3 95
Single reeled machinery steel	5 50
Band steel	3 95
Sleighshoe steel	3 95
Tire steel	4 15
Harrow tooth steel	3 80
Toe caulk steel	4 85
Mining tool steel, per lb.	0 19
Black Diamond tool and cast steel, per lb.	0 19

NOTE.—Refined iron is approximately \$1.50 per cwt. over base, but fluctuates owing to unsettled market.

Band steel in scroll bundles, 50c per 100 lbs. extra.

Iron and steel 3-16 in. and thinner, 50c per 100 lbs. extra.

LEAD AND ZINC GOODS

SELLING WELL

Montreal

No changes in lead and zinc have been noted for the past two weeks. Sales in this line are reported as being very good. Local prices are as follows:

LEAD AND ZINC PRODUCTS—

Lead pipe, per 100 lbs., up to 2 in.	14 50
Do., 2 in. to 8 in.	15 50
Do., 8 in. and over.	16 50
Lead waste, per 100 lbs.	15 50
Lead wool, lb.	0 13
Lead sheets, 2½ lbs., sq. ft. lb.	0 10½
Lead sheets, 3 to 3½ lbs., sq. ft. lb.	0 10
Do., 4 to 8 lbs., sq. ft. lb.	0 09½
Cut sheets, ¾ c. lb. extra and cut sheets to size 1 c. lb. extra.	
Solder, wiping, lb.	0 24½
Solder, commercial, lb.	0 25
Solder, strictly, lb.	0 27
Solder, guaranteed lb.	0 29
Solder wire, lb.	0 39
Zinc sheets, casks	0 11
Do., broken lots	0 12

PRICES REMAIN STEADY IN SHEETS AND PLATES

Montreal.

The price on sheets and plates has remained steady for some time and fail to show any tendency to deviate from the following levels:

BLACK SHEETS—

10 gauge, base	4 75	5 00
12 gauge	4 85	5 00
14 gauge	4 95	5 10
16 gauge	5 05	5 15
18-20 gauge	5 20	5 25
22-24 gauge	5 20	5 35
26 gauge	5 25	5 40
28 gauge	5 35	5 60

GALVANIZED SHEETS—

	Queen's Head	Fleur de Lis
18-20 gauge	6 90 7 40	6 65 7 15
22 gauge	7 15 7 65	6 90 7 40
24 gauge	7 25 7 75	7 00 7 50
26 gauge	7 50 8 00	7 25 7 75
28 gauge	7 75 8 25	7 50 8 00

Other Brands—

10½ oz.	7 75	8 00
28 U. S. gauge	7 00	7 75
28 U. S. gauge	7 50	7 75
24-22 gauge	6 85	7 10
20-18 gauge	6 65	6 75
16 gauge	6 50	6 75

Above prices are for ½ ton lots in English iron and 1000 lb. lots in American iron with a extra charge of 25c for less quantities. Extra for sheets 3 ft. wide, 28 gauge and 10½ oz. 25c per 100 lbs.

Further extra for sheets 4 ft. wide according to gauge.

TIN PLATE—

20 x 28 x 100 lbs. basis.	15 50
20 x 28 IC, 112s	16 00
20 x 28 IX, 112s	18 00
20 x 28 IXX, 56s	11 00
20 x 28 IXXX, 56s	12 00

TERNE PLATE—

20 x 28 IC, 112s, 200 lbs.	14 50
20 x 28 IC, 112s, 214 lbs.	15 00

CANADA PLATE—

Half bright, 60s	5 60
Half bright, 52s	5 50
Blued 52s	5 90
Blued 60s	6 00

METAL LATH SELLING

IN GOOD QUANTITIES

Montreal.

Good seasonable business in metal lath is reported by dealers locally, prices remain firm and fail to show any tendency to deviate from the following:

METAL LATH—		per sq. yd.
Painted—		
26 gauge		23c.
24 gauge		28c.
32 gauge		32c.
Galvanized, 5c. per sq. yd. extra.		

EAVESTROUGH AND CONDUCTOR PIPE REMAIN STEADY

Montreal.

Sales in eavestrough and conductor pipe are reported to be quite seasonable, prices remain steady and are quoted locally as follows:

EAVESTROUGH—

O. G. round and half round, per 100 ft. 8 in., \$16.90; 10 in., \$18.70; 12 in., \$22.20; 15 in., \$35.50; 18 in., \$45.00.

O. G. Square bead, per 100 ft.; 8 in., \$15.90; 10 in., \$17.70; 12 in., \$21.20; 15 in., \$34.50; 18 in., \$44.00.

Discount 65 and 5 per cent.

CONDUCTOR PIPE—Round, Plain and Corrugated, per 100 ft.; 2 in., \$18.40; 3 in., \$22.30; 4 in., \$29.60; 5 in., \$48.00; 6 in., \$58.80.

Discount 65 and 5 per cent.

CONDUCTOR ELBOWS—

Plain or corrugated, price per doz. 2 in., \$5.25; 3 in., \$6.00; 4 in., \$10.50; 5 in., \$24.00; 6 in., \$29.00.

Discount 50 and 10 per cent.

WROUGHT PIPE PRICES

REMAIN STEADY

Montreal.

The price on lapweld and buttweild pipe remains steady. Sales in this line are reported as being quite seasonable and prices are still based on list No. 59 issued some time ago.

WROUGHT PIPE

Price List No. 59. April 24th, 1923.
Standard Buttweild Pipe S/C per 100 feet.

Size	Blk.	Steel	Gen.	Wrot.	Iron
			Galv.	Blk.	Galv.
1/8 in.	6.00	8.00			
1/4 in.	4.32	6.30	7.56	9.60	
3/8 in.	4.32	6.30	7.56	9.60	
1/2 in.	5.53	6.97	7.82	9.35	
3/4 in.	6.79	8.40	9.55	11.27	
1 in.	9.69	12.07	13.77	16.32	
1 1/4 in.	13.11	16.33	18.63	22.08	
1 1/2 in.	15.68	19.53	22.28	26.40	
2 in.	21.09	26.27	29.97	35.52	
2 1/2 in.	33.35	41.54			
3 in.	43.61	54.32			
3 1/2 in.	56.12	69.00			
4 in.	66.49	81.75			

Standard Lapweld Pipe S/C per 100 ft.

Size	Blk.	Steel	Gen.	Wrot.	Iron
			Galv.	Blk.	Galv.
2 in.	24.42	29.60	33.30	38.85	
2 1/2 in.	36.27	44.46	50.31	59.09	
3 in.	47.43	58.14	65.79	77.27	
3 1/2 in.	57.04	69.92	79.12	92.92	
4 in.	67.58	82.84	93.74	110.09	
			foot	foot	
4 1/2 in.	78.74	96.52	1.14	1.33	
5 in.	91.76	112.48	1.33	1.55	
			foot	foot	
6 in.	1.19	1.46	1.73	2.02	
7 in.	1.55	1.90	2.21	2.62	
8 in.	1.63	2.00	2.33	2.76	
8 1/2 in.	1.87	2.30	2.68	3.17	
9 in.	2.23	2.83			
10 in.	2.14	2.92	3.04	3.58	
10 in.	2.76	3.38	3.91	4.01	

PIPE FITTINGS SELLING

IN GOOD VOLUME

Montreal.

A good volume of business is being done in pipe fittings. Prices show no change and are in effect locally as follows:

PIPE FITTINGS—

Cast iron fittings	10%
Plugs, cast iron	10%
Do., solid	10%
Do., countersunk	10%
Bushings, cast	15%
Do., malleable	15%
Unions	30%
Flanged unions	10%
Flanged fittings	27 1/2%
Dart unions, black, 1/8 to 2 in.	27 1/2%
Do., 1/8 in., 2 1/2 in., and larger	10 and 10%
Do., galv. add to black	27 1/2%
Nipples, 1/8 to 4", close and short	45%
Do., long	50%
Do., 4 1/2 to 8", close and short	35%
Do., long	40%
Couplings, 4" and under	25%
Do., 4 1/2" and larger	5%

Malleable Fittings—
Piece list effective June 1st, 1922. Discount 63 per cent.

CLOSET GOODS SELLING IN SEASONABLE QUANTITIES

Montreal.

Closet goods are reported as selling in quite seasonable quantities. Prices remain steady and quotations in effect locally are as follows:

CLOSET COMBINATIONS—

Low Down Outfits,	each
Closet, standard outfit, oak	24 00
Do., post hinge seat	24 50
Do., oak vitro or Pussyfoot	24 00
Do., post hinge seat	24 50
Do., mahogany vitro or Pussyfoot, post hinge seat and cover	27 00
Do., vitreous china, oak post hinge seat and cover	29 00
Do., vitreous china, mahogany post hinge seat and cover	29 50
Do., white vitro or Pussyfoot, mahogany post hinge seat and cover	30 00
Do., enamelled iron tank, oak post hinge seat and cover	28 75
Do., enamelled iron tank, mahogany post hinge seat and cover	29 00
Add for 3/4" valve on supply pipe	1 25
Add for spud	0 60
Add for reverse trap bowl	1 50
Add for syphon jet bowl	7 00
Deduct for supply pipe	0 80
Deduct for floor hinge	0 60
Richelieu bowl	8 00
Washdown bowl with spud	9 90
Reverse trap bowl with spud	9 90
Syphon jet bowl with spud	15 40

CLOSET SEATS—

Oak post hinge seat and cover	3 85
Oak wood strip seat and cover	3 50
Mahogany finish post hinge seat and cover	4 05

CLOSET TANKS—

Low down, oak vitro or Pussyfoot with fittings less seat	12 50
White vitro or Pussyfoot with fittings, flush elbow and supply	16 50
Vitreous china tank with fittings, flush elbow and supply	16 00
Enamelled iron with fittings, flush elbow and supply	18 90

CORRUGATED SHEETS SELLING IN SEASONABLE QUANTITIES

Montreal.

Prices on corrugated sheets remain steady. Dealers locally report just a fair amount of activity, business in this line though being well up to the average of other years.

CORRUGATED SHEETS— Per 100 sq. ft.

No. 28 gauge	7 00
No. 26 gauge	7 50
No. 24 gauge	10 00
No. 22 gauge	12 50
No. 20 gauge	14 00
No. 18 gauge	19 00

Less 10 per cent.

Lighter than 24 gauge and wider than 27 ins., 75 cents per square extra.

SOIL PIPE AND FITTINGS

REMAIN FIRM

Montreal.

Sales in soil pipe and fittings are reported by dealers as being quite satisfactory, prices show no tendency to change and are in effect locally as follows:

SOIL PIPE—

2 and 3 inch	20%
4 inch	25%
5 and 6 inch	20%
8 inch	net

FITTINGS—

2 to 6 inch	37 1/2%
8 inch	net

ACTIVE TRADING IN

RADIATORS AND BOILERS

Montreal.

Quotations on radiators and boilers remain unchanged from the last listing. Business in this line is described as being quite active at the present time. The

following are the prevailing quotations locally:

RADIATORS AND BOILERS—

Radiator list prices are for 1, 2, 3, 4 and 6 column radiators, per sq. ft.

45 in. to 88 in., \$1; 32 in., \$1.10; 30 in., \$1.15; 26 in., \$1.20; 23 in., \$1.25; 22 in., \$1.30; 20 in., \$1.35; 18 in., \$1.40; 16 in., \$1.50; 14 in., \$1.55; 13 in., \$1.60. Discount 44 per cent for hot water, and 45 per cent. for steam.

Wall radiators—5 ft., \$1.15; 6 ft., \$1.10; 7 ft., \$1.05; 9 ft., \$1.05; 12 ft., \$1.05; Discount 41 per cent.

Boilers—Round hot water boilers, sizes from 0 to 10, 52 per cent. off list. Square or sectional hot water or steam boilers, 15 in., 3 per cent. with Ontario Government trimmings, list. Square or sectional water boilers, 19 in. to 36 in., 8 per cent. Square or sectional steam boilers, 10 in. to 26 in., 5 per cent. Ontario Government trimmings, list plus 7 per cent. Square or sectional water or steam boilers, 48 in., list plus 10 per cent. With Ontario Government trimmings, list plus 18 per cent.

Round steam boilers, standard trimmings, 16 per cent. Ontario Government trimmings, 13 per cent.

F.o.b. Montreal, Toronto, Guelph.

COMPRESSION GOODS

ARE FAIRLY ACTIVE

Montreal.

No changes have occurred in the prices of compression goods for some time but it is stated that a revision is apt to take place in the very near future. The following quotations are in effect locally:

VALVES AND BIBBS—

Compression work, standard	45%
Fuller work, standard	30%
Quick opening, compression bibbs	43%
Bath cocks, quick opening	38%
Bath cocks, compression	40%
Basin cocks, quick opening	46%
Flatway stop and waste cocks, standard	54%
Roundway stop and waste cocks, std.	42%
Brass steam cocks, standard, 1/4 in.	25%
Radiator valves, standard	55/25%
Do., removable discs	55/25%
Globe, angle and check valves, std.	25%
Gate or straightway	25%
Emco globe valves	33%
Emco check valves	33%
Jenkins globe, angle, check and swing check	plus 15%
Jenkins gate or straightway	plus 11%
Jenkins iron body, globe and angle	plus 10%
Jenkins iron body, gate	12%
N. P. "O" and "S" traps	34%

NO CHANGE IN QUOTATIONS

ON RANGE BOILERS

Montreal.

There are no changes in the quotations on range boilers, the market having remained steady for some time. Trading is reported as improving. List prices and discounts are as follows:

RANGE BOILERS—

5 Gallon	\$13 50
12 "	14 00
18 "	15 00
25 "	16 50
30 "	17 50
35 "	20 50
40 "	22 75
52 "	38 00
66 "	60 75
82 "	74 00
100 "	103 00
120 "	117 00
144 "	164 00
168 "	187 00
192 "	210 00

Discount Standard. 35 per cent.; Extra heavy, 25 per cent.

STEADY TONE IN

INGOT METAL MARKET

Montreal.

The metal market shows very little change this week and considering everything must be said to have held fairly well. Taking into consideration the unsettled conditions prevailing generally, the steady tone is significant as show-

ing the present reasonable level of prices.

LEAD.—This metal is dull and is practically unchanged from last week, with supply and demand fairly well balanced. The next move is not easy to foresee, but is not likely to be very pronounced in either direction. The local market is quiet at 8c per pound.

SPELTER.—London remains firm and East St. Louis is steady at \$6.45. Future deliveries are quoted at a premium, and with the present cost of ore there is no profit for smelters. Any volume of buying would undoubtedly result in higher prices. The local market is firm at 9½ cents per pound.

ANTIMONY.—The tone of the China market is strong, but buying has slack-

ened owing to realizing by second hands. The local market is firm, with English quoted at 8½ cents and Chinese at 8 cents per pound.

TIN.—Considering the July statistics which showed a decrease in the visible supply, the market did not respond quite as anticipated, but is slightly higher than last week. A quiet market will probably be seen until the political situation is cleared up to some extent. The market is steady at 45 cents per pound.

COPPER.—The New York market continues easier without any pronounced selling pressure. London holds very well and this metal would probably respond to any favorable use. The local market is quiet at 20 cents for electro and 19½ cents for casting.

Toronto Markets

TORONTO, August 30.—Local dealers and jobbers report an improvement in business as taking place during the past two weeks and a general spirit of optimism exists in the trade as regards fall business. Price changes which have taken place since last issue, locally, are all in a downward direction. Declines in prices have occurred on some lines of laundry tubs, compression goods, ground key stops and wastes, and bath cocks and compression stops.

Scrap prices are unchanged, and this market is still very dull.

Collections are reported by some dealers to be slightly improved over the average of previous weeks of this summer.

GROUND KEY STOPS AND WASTES ARE REDUCED

Toronto.

A reduction of approximately ten per cent. has been made in the prices of some lines of ground key stops and stop wastes. The new prices are as given herewith:

GROUND KEY STOPS AND STOP WASTES—

Nos. 3954-3969	56% Off
Nos. 4031-4036	45% Off
Nos. 4043-4048	37% Off
Nos. 4049-4054	37% Off
No. 4207, C.O. basin plug with N.P. tail, 1¼ inch	66c each
4208 P. O. basin plug with N. P. tail 1¼ inch	71c.
1 inch x 1¼ in.	33% Off
4216 C.O. basin plug with N. P. tail, 1¼ inch	65c. each
4217 P.O. basin plug with N.P. tail, 1¼ inch	71c each
4248-4251 up to 2 in. yellow metal 50 per cent. off.	
4248-4251, 2½ in. and larger, 50 per cent. off.	

LAUNDRY TUBS TAKE SLIGHT DECLINE

Toronto.

Aristocrat laundry tubs, which have been selling for \$12.50 each, are now being sold at \$12 each. Fair sales are reported to have been made in this line, as building is continuing, though not at the same rate as was the case in the spring of this year.

DECLINES HAVE OCCURRED ON SOME LINES OF COMPRESSION GOODS

Toronto.

Declines in prices have been announced on several lines of plumbing supplies such as compression goods stop and waste cocks, ground key stops, etc. The new prices are as follows:

Compression Bibbs No.'s 3001-3041....	48% Off
Compression Bibbs No.'s 3053-3058....	43% Off
Compression Bibbs, No.'s 3084-3085....	49% Off
Quick Opening Comp. Bibbs, 3100-3115	45% Off
Quick Opening Comp. Bibbs, 3116-3119	45% Off
Ball or roller bearing, self-closing, 3338-3850	40% Off
Stops also stop and waste cocks—	
Compression, 3450-3453	48% Off
Compression, 3462-3463	43% Off
Compression, 3467-3479	45% Off
1½ inch as 3483 listed at \$32.40 doz.	less 67%
Urinal cocks, compression, 3500-3508	25% Off
Sill and boiler drain cocks, 3560-3568	50% Off
1½ and ¾ list only used.	
Add 10c net for N. P. or finished.	
Boiler Drain cocks, No. 3571, net.....	0 72
VALVES AND BIBBS—	
Compression work, standard	48%
Quick opening, compression bibbs....	45%
Bath cocks, quick opening	53%
Bath cocks, compression, plain hdl....	45%
Bath cocks, compression, indexed hdl....	45%
Basin cocks, quick opening	50%
Basin cocks, compression	36%
Flatway stop and waste cocks, standard	56%
Roundway stop and waste cocks, std....	42%
Brass steam cocks, standard, 1¼ in....	25%
Radiator valves, standard	55 25%
Do., removable discs	55 25%
Globe, angle and check valves, std....	25%
Gate or straightway	25%
Emco globe valves	33%
Emco check valves	33%
Jenkins globe, angle, check and swing check	plus 15%
Jenkins gate or straightway	plus 11%
Jenkins iron body, globe and angle plus	10%
Jenkins iron body, gate.....	12%
N. P. "O" and "S" traps	34%

SALES OF BOILER STANDS FAIRLY ACTIVE

Toronto.

Boiler stands in conjunction with the steady sales of range boilers are selling in fair quantities. Prices in force are given herewith:

BOILER STANDS—

Each—5 gal. \$1.50; 12 gal. \$1.50; 18 gal. \$1.50;	
25 gal. \$1.50; 30 gal. \$1.50; 35 gal. \$1.75;	
40 gal. \$1.90; 52 gal. \$2.10; 66 gal. \$2.25; 82 gal.	
\$2.50; 100 gal. \$3.80; 120 gal. \$4.00; 144 gal.	
\$4.00; 168 gal. \$4.00; 192 gal. \$4.00; Adjustable	
Stands 12 to 14 in., 45c. Stahl boiler stand, 60c.	

COMPRESSION STOPS AND BATH COCKS TAKE LOWER LEVELS

Toronto.

Lower prices are given out this week on flatway stops, compression stops and wastes, lavatory wastes and overflows, N. P. traps, and compression bath cocks. New prices are given herewith:

Comp. bath cocks, N.P. handles or indexed handles No. 3825	3 78
Compression bath cocks, N.P. handles or indexed, china button, No. 3830	1 51
Deep seal P. or S. N. P.'d. traps, no vent	3 55
Waste and overflows, 19 ge., 1½ in. T. B. L.	4 00
Waste and overflows, 19 ge., 1¼ in., county	3 00
Compression stops No. 3450 brass fin., ½ inch, each.....	0 86
Compression stops, No. 3450, N.P., ½ inch, each	1 01
Lavatory stops, No. 3466, N.P., ¾ in., ea. 1 21	
Do., No. 3468, N.P., ¾ in., each.....	1 21
Compression stop and wastes, No. 3483 ½ inch	0 89
Compression stop and wastes, ¾ in....	1 29
Flatway stops, Iron Pipe, rough, No. 3968, ½ inch	0 77
Flatway stops, and waste, No. 3969, ½ inch	0 79

BRASS BIBBS AND SOME BASIN COCKS ARE LOWER

Toronto.

Brass goods have been lowered in price in some lines approximately 1 per cent. Some of the new prices are given herewith:

Brass finished bibbs, ½ in., No. 3000, each	0 86
N.P. finished bibbs, ¼ in. No. 3000, ea.	1 01
Brass hose bibbs, ½ in. No. 3001, ea....	0 99
N.P. hose bibbs, ½ in., No. 3001, ea....	1 14
Loose flange bibbs, ½ in. N.P. No. 3208	1 43
Loose flange hose bibbs, N.P. ½ in. N. P. No. 3029	1 56
Basin cocks, plain or indexed pair.....	3 10
Self-closing basin cocks, indexed.....	6 50
Self-closing basin cocks, not indexed....	5 21

STEADY MARKET ON NEARLY ALL INGOT METALS

Toronto.

With the exception of copper, which has been on the slow side during the past two weeks, ingot metals are steady in price with a fairly steady demand for nearly all lines. Current prices are given herewith:

INGOT METALS—

Copper \$18.00 to \$19.00; Tin \$45.00 to \$46.00; Lead \$8.00 to \$8.25; Spelter \$9.00; Antimony, \$8.25 to \$8.50; Aluminum, \$23.00 to 25.00.

RANGE BOILER SALES FAIRLY ACTIVE

Toronto.

Sales of range boilers are fair and unchanged in price this week. Buildings, which are in progress at the present time, are expected to keep a steady sale in boilers during the fall months.

RANGE BOILERS—	St'nd'rd	Ex. He'vy
5 gallon	8 77	.....
10 to 15 gallon.	9 10	.....
18 gallon	9 75	.....
25 gallon	10 70	.....
30 gallon	11 35	13 13
35 gallon	13 30	15 33
40 gallon	14 80	17 06
52 gallon	24 70	28 50
66 gallon	39 50	45 56
82 gallon	48 10	55 50
100 gallon	66 95	77 25
120 gallon ..	76 05	87 75
144 gallon ..	.....	122 50
168 gallon ..	.....	140 25
192 gallon ..	.....	157 50

EXTRAS—

For horizontal tapping	1 15
1" Special for gas heater	1 00
Each extra 3" tapping	3 00
Each extra 2" tapping	1 75

Perfection

Automatic Air Valves



You might as well try to operate a steam engine without a boiler as to expect the peak of efficiency from heating systems equipped with impractical air valves.

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Wellby Special No. 5

If interested, tear out this page and place with letters to be answered.

QUIET MARKET IN SCRAP MATERIALS

Toronto.

A very slow market is the report again on the scrap material market. Very few sales are being made and considerable improvement is looked for during the coming months.

SCRAP MATERIALS— f.o.b. Toronto

Gross Tons—	
Scrap Iron	
Heavy melting steel	11 00
Scrap pipe	7 00
Steel turnings	9 00
Malleable scrap	16 00
Rails, scrap	12 00
Net tons—	
No. 1 cast	18 00
Stove plate	14 00
Car wheel (std.)	15 00
Scrap Metals	
Heavy copper wire	12 00
Light chopper	9 00
No. 1 composition	9 00
Red brass turnings	8 00
Light brass	4 50
Heavy yellow brass	6 50
Heavy lead	5 00
Tea lead	3 00
Scrap zinc	4 75
Aluminum sheet and clippings	14 00
Aluminum cast	13 00
Hard lead	4 25
Scrap Rubber	
Boots and shoes	1 50
High rubber boots	1 50
Auto tires	0 25
Solid tires	0 25
Inner tubes, mixed	2 50
Peelings, mixed	0 75

IMPROVEMENT IN SALES OF ASBESTOS PRODUCTS

Toronto.

The prices have not been changed from former levels on asbestos products. Good quantities have been selling of late and quite a noticeable improvement has taken place over the volume of sales of the early summer.

ASBESTOS PRODUCTS—

Pipe Covering—	
Air cell, 4 ply .....	.50 per cent. off list.
Air cell, 3 ply .....	.55 per cent. off list.
Air cell, 2 ply .....	.51½ per cent. off list.
Boiler Covering	\$1.50 — \$2.00 per bag.
Asbestos paper or felt .....	.825 — \$9.00
Magnesia pipe covering	less 40 per cent.
Magnesia pipe covering, small lots, less 35 per cent.	

ENAMELED BATHS AND SINKS FIND READY SALE

Toronto.

Enameled fittings have been selling in good quantities of late. No changes have occurred in the prices of these lines. Current prices are given herewith:

ENAMELED WARE—

Sinks, flat rim—			
16 x 24	1 only	2 only	3 only
16 x 24	\$ 7 50	\$ 7 40	\$ 7 30
18 x 30	8 70	8 60	8 50
20 x 30	9 90	9 80	9 70
Bath tubs, roll rim, 4, 4½, 5 feet, 24 to 30 in. wide			
30 in. wide			51 40
Bath tubs, 5½ feet			57 10
Lavatories—			
17x19 in. Apron F139 or P4045			15 30
18x24 in. Apron F154 or P3845 or P3847			23 60
18x21 in. Apron F169 or P4205			17 60
17x19 in. Roll rim. F241 or P4845			12 60
Less 30 per cent.			

BRISK TRADE IN SOLDER AND ZINC GOODS

Toronto.

Sales during the past week in solder and zinc goods have been of good volume. Prices are unchanged with the exception of about a half cent per pound

Reduction in Finished Copper and Brass

FOR some five months now, producers have been looking for another buying movement, but to date none has materialized, and whether the upturn in the London, Eng., market will influence sentiment to the point of wholesale buying at this time is a matter of conjecture.

Sales of electrolytic copper are being effected at both 14 and 14½¢ per pound, delivered, on moderate buying from consumers both in the United States and abroad. England and France have been leading in the buying during the last few days.

The finished brass and copper market has been very soft and easy during the

last day or two, and this market is still in the same state at present.

As a result of the quiet market, one of the largest manufacturers in these lines of goods has declared a sweeping reduction of a half a cent per pound on finished copper and brass products, this reduction to become effective at once.

This change will no doubt affect prices in Canada in the near future, but this change has nothing to do with the reduction in brass plumbing goods, such as bibbs, etc., which is announced this week in Canadian markets, as this reduction in prices has been contemplated in Canada on these lines of goods for some time.

reduction on one or two lines. Prices are given herewith:

LEAD AND ZINC GOODS—

Lead pipe, per 100 lbs., up to 2"	14 50
Do., 2" to 8"	15 50
Do., 8" and over	16 50
Lead waste, per 100 lbs.	15 50
Note—Lead pipe is subject to a discount of 10 per cent.	
Lead traps and bends	15%
Lead wool, lb.	0 14½
Lead sheets, 2½ lbs., sq. ft. per lb.	0 12½
Lead sheets, 3 to 3½ lbs.	0 11
Do., 4 to 8 lbs., sq. ft. lb.	0 10
Cut sheets, ¾¢ per lb. extra.	
Cut sheets, to size, 1¢ per lb. extra.	
Solder, guaranteed, lb.	6 30
Do., strictly, lb.	0 29
Do., commercial	0 26½
Do., wiping	0 27
Do., wire	0 34½
Zinc sheets, casks, lb.	0 11¾
Do., do., less, lb.	0 12½

BETTER TRADE NOTICED IN PIPE FITTINGS

Toronto.

Pipe fittings, malleable and cast, have been selling better during the past week. Jobbers report that a slight improvement is noticeable in these lines. Prices are as follows:

PIPE FITTINGS—Cast Iron—

Elbows, tees, etc., standard sizes	10%
Plugs, solid, countersunk and std.	10%
Bushings	15%
Flanged unions	17½%
Flanged fittings	20%
Drainage fittings, black	22½%
Do., galvanized	27½%
C. I. Stop cocks, up to 4"	21%
C. I. Stop cocks, up to 4" with brass plug	15%
Ringhangers	30%

MALLEABLE FITTINGS—

Bushings	15%
Hex. nipples, R. & L.	25%
Steam cock wrenches	30%
Union ells and tees	40%
Boiler fittings (old style)	32½%
Do., (new style)	27½%
Lip unions, all sizes	30%
Dart unions, blk. up to 2"	27½%
Dart Unions, blk. ½" also 2½" and over	10 and 10%
Wrought nipples to 4" close & short	45%
Wrought nipples up to 4" long	50%
Wrought nipples, 4½ in. and up long	40%
Wrought nipples, up to 4" close & short	45%
Do., 4½" and up, close and short	35%
Malleable fittings, sold from price list, less 63%	

BRISK SALES IN SOME LINES OF CANADA PLATES

Toronto.

With the approaching fall, with cooler weather, much activity is noticed among manufacturers of stove pipe. Sales of Canada plates have been stimulated of

late and good sales have been made in most gauges of Canada plates.

CANADA PLATES—

	Per box
Ordinary, 75s	5 85
Blued, 75s	6 15
Blued and oiled, 75s	6 25
Polished, 75s	7 05
Ordinary, 60s	5 70
Blued, 60s	6 00
Blued and oiled, 60s	6 15
Polished, 60s	6 90
Ordinary, 52s	5 60
Blued, 52s	5 49
Blued and oiled, 52s	6 60
Polished, 52s	6 60
Welsh polished, 60s	7 05
Welsh polished, 52s	7 30

GALVANIZED SHEETS STILL SELLING AT LOW PRICES

Toronto.

The prices of galvanized sheets are still low, much material being still on the market which was purchased at low prices at the beginning of the year. Good sales in this material have been registered during the past two weeks. Current prices are given herewith:

SHEETS, GALVANIZED—

Premier and Apollo Brands—		
10¾ oz. 3 ft. wide	7 00	7 25
10¾ oz. narrower	6 90	7 05
28 U. S. gauge, 3 ft. wide	6 60	6 85
28 U. S. gauge, narrower	6 50	6 65
26 U. S. gauge	6 20	6 35
22 and 24 U. S. gauge	6 05	6 20
18 and 20 gauge	5 90	6 05
16 U. S. gauge	5 75	5 90
12 and 14 U. S. gauge	5 60	5 75

F.o.b. and delivered in Toronto.

An extra 20¢ per 100 lbs. is charged for Keystone and Premier brands copper-bearing sheets.

Queen's Head	
28 gauge, base	7 50
26 gauge	7 10
24	80
22	6 65
18 to 20 ga.	6 50

Fleur de Lis	
28 gauge base	7 50
26	7 10
24	6 80
22	6 65
18 to 20 ga.	6 25

TANK STEEL PLATES—

¼-in. and heavier, base	3 60
3-16 in.	3 95

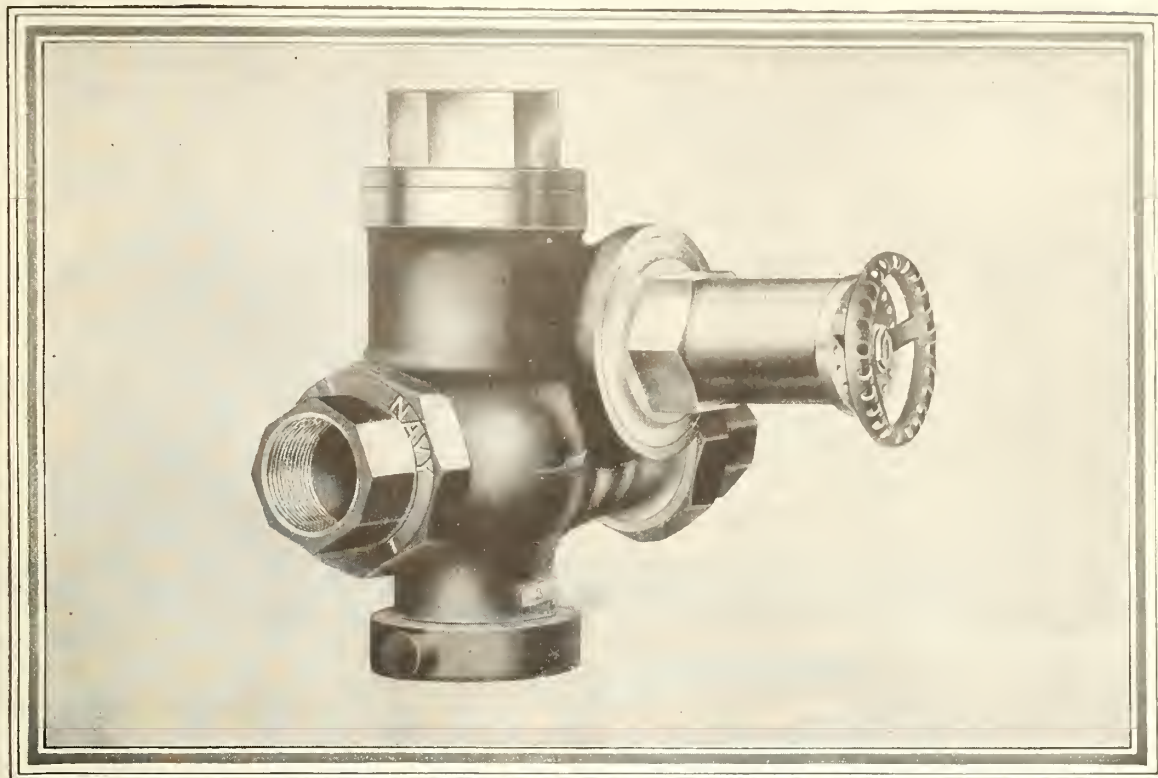
BLUE ANNEALED SHEETS—

10 gauge, base	4 50	4 60
12 gauge	4 55	4 65
14 gauge	4 60	4 70
16 gauge	4 65	4 75

BLACK SHEETS—

18-20 gauge	5 05	5 30
22-24 gauge	5 10	5 35
26 gauge	5 15	5 40
28 gauge	5 25	5 50

A charge of 25¢ per 100 lbs. is made for less than case lots. An extra 10¢ per 100 lbs. is also charged on sheets 2½ in. wide.



A CRANE PRESSURE REGULATOR WHICH TRANSFORMS HIGHER PRESSURES TO ANY CONSTANT PRESSURE

INCREASING THE UTILITY OF A PLANT

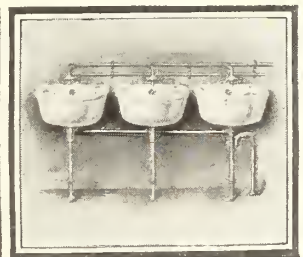
Low pressure steam or air delivery direct from higher pressure mains and constant pressure delivery are possible with Crane pressure regulators. Steam at the correct pressure for small power units or low pressure heating, constant pressure steam for process heating and air for blasts, heaters, and low pressure tools can be taken from higher pressure

mains through this automatic valve without loss of one bit of heat or energy. Crane pressure regulators are furnished with unions or flanged connections, for any reasonable capacity and working pressure. Let the Crane representative help you to increase the utility of your distribution piping with this dependable money-saving specialty.

CRANE

CRANE LIMITED, GENERAL OFFICES, 386 BEAVER HALL SQUARE, MONTREAL
CRANE-BENNETT, LTD., HEAD OFFICE: 45-51 LEMAN STREET, LONDON, ENG.

*Branches and Sales Offices in 21 Cities in Canada and British Isles
Works: Montreal, Canada, and Ipswich, England*



Crane "Barracks" Lavatories

FIRM PRICES EXIST ON IRON AND STEEL

Toronto.

Present prices, though unchanged, are firmer on iron and steel. The effect of the new arrangement of the eight-hour day has not been felt as yet. Slightly higher prices are expected as a result of the shorter day.

IRON AND STEEL—

Per cwt.

Bars, steel	base	3 75
Bands, 3-16 in. and lighter ..	4 25	4 50
Hoops heavier than 1 in. x 20G.	5 50	
Hoops lighter than 1 in. x 20G.	6 00	
Shapes, smaller than 1 in.	4 00	
Sheets Galv., base	6 65	
Sheets, black, base	5 60	5 75
Sheets, blue, base	4 60	
Plates, ¼ in. and heavier ..	3 75	4 00
Plates 3-16 in.	4 15	4 40
Cold rolled steel, rounds	4 15	
Sleigh shoe steel	4 10	4 15
Cold rolled flat square, Hex. ..	5 75	
Tool steel, high grade	30 00	5 75
Drill steel	18 50	
Crucible cast sheet	30 00	35 00

GOOD SALES MADE IN EAVES-TROUGH AND CONDUCTOR PIPE

Toronto

Sales of eavestrough and conductor pipe are improving. The fair quantity of building which has been going on during the summer has kept up the sales on these lines to a great extent. Current prices are given herewith:

TROUGH (Eave)—

O. G. Square Bead—

Per 100 ft.

Per 100 ft.

8 inch	\$15 90	15 inch.....	\$34 50
10 inch ..	17 70	18 inch.....	44 00
12 inch ..	21 20		

O. G. Round and Half Round—

8 inch	16 90	15 inch.....	35 50
10 inch ..	18 70	18 inch.....	45 00
12 inch ..	22 20		

Less 65 and 5 per cent.

PIPE (Conductor)—

Plain, round or corrugated

Per 100 ft. in 10 ft. lengths

2 in., in 10 ft. lengths, list.....	13 40
3 in. in 10 ft. lengths, list.....	22 30
4 in. in 10 ft. lengths, list.....	29 60
5 in. in 10 ft. lengths, list.....	48 00
6 in. in 10 ft. lengths, list.....	58 80

Less 65 and 5 per cent.

CONDUCTOR ELBOWS—

Plain, round or round corrugated:

2 inch, list	\$ 5 25
3 inch, list	6 00
4 inch, list	10 50
6 inch, list	29 00

Outlets, cut offs, tubes and conductor hooks
List less 50 and 10 per cent.

FAIR SALES MADE IN BOILER TUBES

Toronto

Prices remain unchanged from former levels on boiler tubes. Fair sales are reported by dealers in these goods.

BOILER TUBES—

Seamless Lapweld

1 inch	20 00	.....
1¼ inch	22 00	.....
1½ inch	21 00	.....
1¾ inch	24 50	24 00
2 inch	21 50	20 00
2¼ inch	24 50	23 00
2½ inch	29 00	24 50
3 inch	34 00	31 00
3½ inch	39 50	35 50
4 inch	50 00	45 00

Prices, per 100 ft., f.o.b. Montreal.

Winnipeg, Man.

WINNIPEG, August 30.—There is a seasonable demand for all lines of goods used by the plumbing and steamfitting trades and a revival of business is expected shortly. Tap plugs show a slight advance while force cups and bathroom hooks are quoted at lower figures. Declines in price have also occurred on bath tub brushes. Closet bowls and seats and other closet combinations are showing an improvement in sales of late, prices on these lines are firm and unchanged.

TAP PLUGS AT SLIGHTLY HIGHER LEVELS

Winnipeg.

Higher quotations are in effect on tap plugs, and the following sizes are quoted as listed below:

TAP PLUGS—

Per doz.

¼ inch	2 70
5-16 in.	2 90
¾ in.	3 25
7-16 in.	3 40
½ inch	3 50
9-16 in.	3 75

BATHROOM HOOKS AT LOWER LEVELS

Winnipeg.

Solid brass bathroom hooks are quoted at lower levels, and quotations are \$1.40 per dozen.

FORCE CUPS SHOW A DECLINE

Winnipeg.

A decline is in effect on force cups. Four-inch is quoted at \$7.80 per dozen, four and a half \$9, and five and a half at \$15. Bath tub brushes have also shown a decline, and are quoted at \$5.40 per dozen. Closet brushes are quoted at \$6 per dozen.

EAVESTROUGH AND CONDUCTOR PIPE IN STEADY MARKET

Winnipeg.

Dealers report that the demand for eavestrough and conductor pipe is seasonable and prices are unchanged. The O. G. trough and standard line of conductor pipe sales are well up to the average of last year at this time.

NO CHANGE IN PRICES OF SHEETS AND PLATES

Winnipeg.

No change is noted in the price of sheets and plates. The demand continues fair.

LEAD AND ZINC PRICES FIRM

Winnipeg.

A firm tone is maintained on lead and zinc goods. The demand continues seasonable.

CLOSET COMBINATIONS SHOW IMPROVEMENT IN THE DEMAND

Winnipeg.

Closet bowls, seats, low down tanks, and other closet combinations, are showing an improvement in the demand, and prices are unchanged.

SOIL PIPE AND FITTINGS REMAIN FIRM

Winnipeg.

The demand for soil pipe, especially in the country districts, is showing an im-

provement, and although prices show no change the tendency is that this line will remain firm for some time.

TRADING IN ENAMELLED WARE REPORTED LIGHT

Winnipeg.

Trading in enamelled ware is reported light by dealers locally. No price changes are reported.

NO CHANGE IN PRICE ON CORRUGATED SHEETS

Winnipeg.

Dealers in corrugated sheets report seasonable sales and are looking for an increased demand just as soon as the farmer gets through his threshing.

COPPER AND BRASS PRODUCTS ARE FIRM

Winnipeg.

The market for copper and brass products continues firm, although local prices are unchanged.

QUIET TONE PREVAILING IN RADIATORS AND BOILERS

Winnipeg.

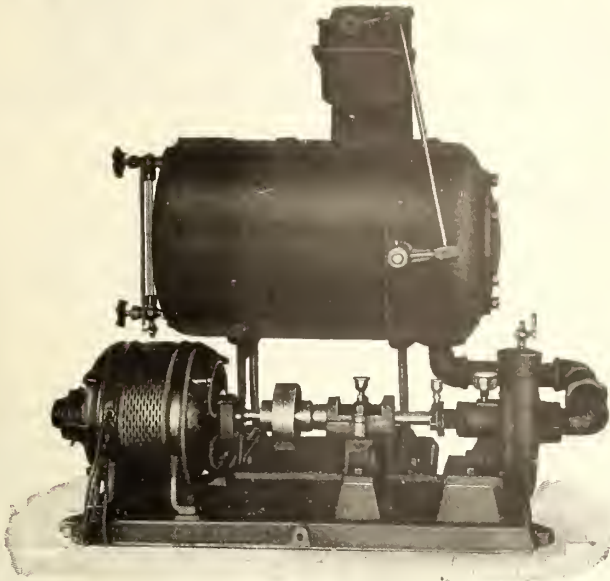
A quiet tone prevails in the radiator goods market, but the trade generally is looking for a revival of trade shortly. Prices in effect are the same as have ruled for some time past.

Twelve Hundred Permits Issued for Residences

THE value of prospective building in fifty-six cities of Canada showed a slight decline during July when, according to reports tabulated by the Dominion Bureau of Statistics, the building permits issued declined to \$12,544,137 from \$14,345,573 in June. In July of last year they had stood at \$15,447,545. Forty-five cities furnished detailed reports showing that they had issued some 1,200 permits for dwellings at an approximate valuation of \$5,300,000, and for nearly 2,000 other buildings estimated to cost over \$6,300,000.

The value of the building permits issued from the beginning of the year to the end of July showed a decline as compared with the corresponding month of 1922, but an increase over the same period of 1921, the figures being \$83,598,348. for 1923, 85,742,989 for 1922 and \$65,451,255 for 1921.

Making Assurance Doubly Sure



No. W-155.
Equipped with motor-driven centrifugal pump.

Write for Catalogue No. 12.

Things once done wrongly are hard to rectify. This especially applies to installations of heating equipments.

Smart-Turner Automatic Feed Pumps and Reservoirs are built to last indefinitely and give constant service to the end.

Their performance in past years is ample evidence of their dependability and sturdiness—meeting the demands placed on them.

Let us consult with you on your heating jobs.

*Fisher Steam Specialties—
Order from us.*

The Smart-Turner Machine Company, Limited

Hamilton - Canada

*Representatives in Toronto, Montreal, Winnipeg
and St. John.*

Sell Uninterrupted HOT WATER SERVICE

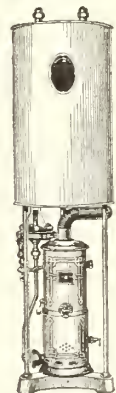
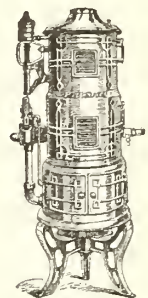
NOW is the time to sell Pittsburgs for uninterrupted hot water service. Before the furnace fires are started, how many of your customers are doing without hot water? Sell a Pittsburg as an auxiliary to their winter hot water system.

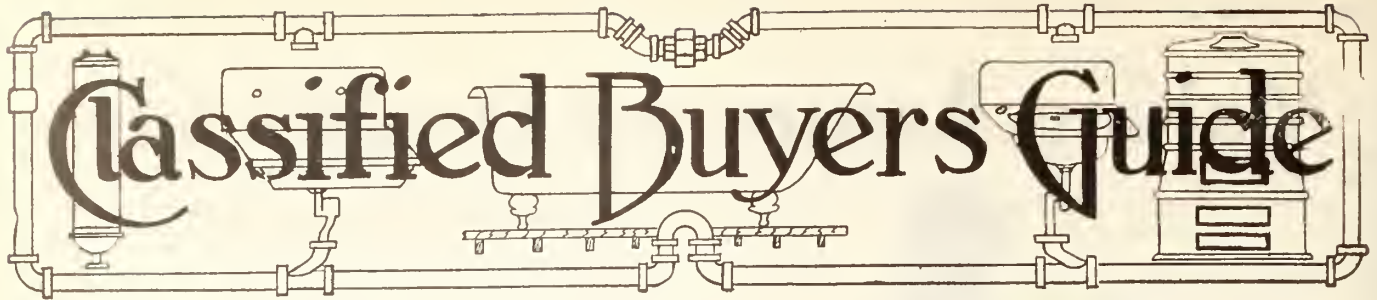
You know the Pittsburg Heaters are made and guaranteed by the oldest and largest manufacturer of hot water heaters in the world. Pittsburg Water Heaters are the world's standard.

Pittsburg

AUTOMATIC GAS
WATER HEATERS

Canadian Distributor, E. M. Patterson, Sales Agent, 504 Spadina Ave., Toronto
"If it's done with heat, you can do it BETTER with gas."



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AIR LINE SYSTEMS

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W. H. Cunningham & Hill, Ltd., Toronto.
C. A. Dunham Co., Ltd., Toronto.
Empire Mfg. Co., Ltd., London and Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
Wallaceburg Brass & Iron Mfg. Co., Ltd., Wallaceburg, Ont.
Wolverine Ltd., Toronto, Ont.

BATHS, STEEL

Steel Trough & Machine Co., Ltd., Tweed, Ont.

ATMOSPHERIC STEAM HEATING

J. E. Farrell, 210 Galley Ave., Toronto, Ont.

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Gendron Mfg. Co., Toronto.

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Warden King, Ltd., Montreal.

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BOLTS AND NUTS

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Fittings, Limited, Oshawa.
Galt Brass Co., Limited, Galt.
Kerr Engine Co., Ltd., Walkerville.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
Standard Sanitary Mfg. Co., Ltd., Toronto, Hamilton.
Wallaceburg Brass & Iron Mfg. Co., Ltd., Wallaceburg, Ont.
Wolverine Ltd., Toronto, Ont.
W. H. Cunningham & Hill, Ltd., Toronto

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Canada Metal Co., Ltd., Toronto.
Empire Mfg. Ltd., London and Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
Wolverine, Ltd., Toronto, Ont.

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Canada Metal Co., Ltd., Toronto.
Fittings, Limited, Oshawa.

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Galt Brass Co., Limited, Galt.
Empire Mfg. Ltd., London and Toronto.
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Fittings, Limited, Oshawa.

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Galt Brass Co., Limited, Galt.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
Standard Sanitary Mfg. Co., Ltd., Toronto, Hamilton.
Steel Trough & Machine Co., Ltd., Tweed, Ont.

CLOSETS, CHEMICAL

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Steel Trough & Machine Co., Ltd., Tweed, Ont.

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T. G. Griffith & Co., Toronto, Ont.
H. Mueller Mfg. Sarnia, Ont.
Smart Turner Machine Co., Ltd., Hamilton, Ont.

COUPLINGS

Canada Metal Co., Ltd., Toronto.
Fittings Limited, Oshawa.

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C. A. Dunham Co., Ltd., Toronto.

DRAINAGE FITTINGS

Canada Metal Co., Ltd., Toronto.
Empire Mfg. Co., Ltd., London and Toronto.
Fittings Limited, Oshawa.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
Standard Sanitary Mfg. Co., Ltd., Toronto, Hamilton.
Warden King, Ltd., Montreal.

DRAIN PIPE SOLVENT

W. H. Cunningham & Hill, Ltd., Toronto.

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Canada Metal Co., Ltd., Toronto.
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H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
Standard Sanitary Mfg., Co., Ltd., Toronto, Hamilton.

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Kerr Engine Co., Walkerville.

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Canada Metal Co., Ltd., Toronto.
Empire Mfg. Co., Ltd., London and Toronto.
Galt Brass Co., Limited, Galt.
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Standard Sanitary Mfg. Co., Ltd., Toronto, Hamilton.

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Empire Mfg. Co., Ltd., London and Toronto.
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FITTINGS

Canada Metal Co., Ltd., Toronto.
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Standard Sanitary Mfg. Co., Ltd., Toronto, Hamilton.
Warden King, Ltd., Montreal.

FLUSHOMETERS

Canada Metal Co., Ltd., Toronto.
Empire Mfg. Co., Ltd., London and Toronto.
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Wolverine Ltd., Toronto, Ont.
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H. Mueller Mfg. Co., Ltd., Sarnia, Ont.

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Warden King, Ltd., Montreal.

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Pittsburgh Water Heater Co., Pittsburgh, Pa.
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Lord & Burnham Co., Ltd., Toronto.
Ruud Mfg. Co., Toronto.
Smart Turner Machine Co., Ltd., Hamilton, Ont.
Warden King, Ltd., Montreal and Toronto.
W. H. Cunningham & Hill, Ltd., Toronto.

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J. E. Farrell, 210 Galley Ave., Toronto, Ont.

JAPANNING

Fittings, Limited, Oshawa.

KEROSENE WATER HEATERS

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McClary Mfg. Co., Ltd., London, Ont.

LAUNDRY TUBS

The Canada Metal Co., Ltd., Toronto.
Standard Sanitary Mfg. Co., Ltd., Toronto, Hamilton.
Steel Trough & Machine Co., Ltd., Tweed, Ont.

How to Reach Your Prospective Customer as an Invited Guest

II.

Suppose you are anxious to secure an order from an important business man; which of the following would you prefer:

(1) To call upon him at his office, while he is busy with Rush Correspondence or engaged on business with other people with whom he has made appointments, and perhaps find after all he is unable to see you, or

(II) To receive a note from him saying he will be glad to see you if you will call on such and such a day?

Naturally you would prefer to receive his note. You would then be sure of receiving his attention; you would be the "invited guest." In the first case you would be more or less an interloper, possibly unwelcome, as you would be taking up time he had intended to use otherwise.

Now the relative difference between the interloper and the invited guest represents exactly the difference between the free publication or circular and the business paper. The former comes unasked, it may by chance be read, more probably it is not. That depends on circumstances. Its most likely destination is the waste paper basket. The trade paper, on the other hand is the invited guest. It is even more, for it has not only been invited, it has been paid to come. Its arrival is looked forward to periodically and the messages it brings are therefore sure to receive attention.

It is partly in order that he may receive these sales messages that the business man pays for the paper. In most cases the advertisements are considered equally as important as the reading matter. It is advisable then for you to see that your messages reach him in this best of all possible ways—as an invited guest.

Now how can you assure yourself that the medium you choose for your advertisement will comply with these conditions—that it is not among the interloper class?

The answer to this query will appear in our third talk which you will find in our next issue.

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143-153 University Avenue, Toronto

Publishers of:

The Financial Post
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Canadian Machinery
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Trade

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Empire Mfg. Co., London and Toronto.
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Standard Sanitary Mfg. Co., Ltd., Toronto, Hamilton.

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Empire Mfg. Co., Ltd., London and Toronto.
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Empire Mfg. Co., Ltd., London and Toronto.
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Canada Metal Co., Ltd., Toronto.
Empire Mfg. Co., Ltd., London and Toronto.
Fittings, Limited, Oshawa.
Forwell Foundry Co., Kitchener, Ont.
Katie Foundry Co., Galt, Ont.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
Standard Sanitary Mfg. Co., Ltd., Toronto, Hamilton.
Toronto Hardware Mfg., Co., Toronto.
Warden King, Ltd., Montreal.

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Borden Canadian Co., Warren, Ohio.
A. B. Jardine & Co., Hespeler.
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PIPE WRENCHES

W. H. Cunningham & Hill, Ltd., Toronto.
Greenfield Tap & Die Corp., Galt, Ont.

PLUMBERS' TOOLS

W. H. Cunningham & Hill, Ltd., Toronto.
Greenfield Tap & Die Corp., Galt, Ont.

PNEUMATIC WATER SUPPLY TANKS

Empire Mfg. Co., London and Toronto.
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Canada Metal Co., Ltd., Toronto.
Canadian Potteries, Limited, St. John's Que.
Empire Mfg. Co., London and Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.

PUMPS

Ashwell & Nesbitt, Ltd., Leicester, Eng.
Canadian Fairbanks-Morse Co., Ltd., Montreal, Que.
W. H. Cunningham & Hill, Ltd., Toronto.
T. G. Griffith & Co., Ltd., Toronto, Ont.
H. Mueller Mfg. Co., Limited.
Smart Turner Machine Co., Ltd., Hamilton, Ont.
Steel Trough & Machine Co., Ltd., Tweed, Ont.

PUMP, HAND AND POWER, FOR PAINTS, OILS, OIL AND GASOLINE

Ashwell & Nesbitt, Ltd., Leicester, Eng.

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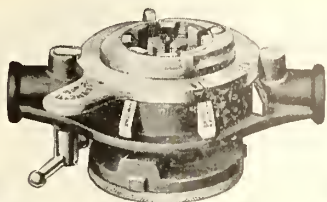
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Greenfield Tap & Die Corp., Galt, Ont.
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Complete Within Itself

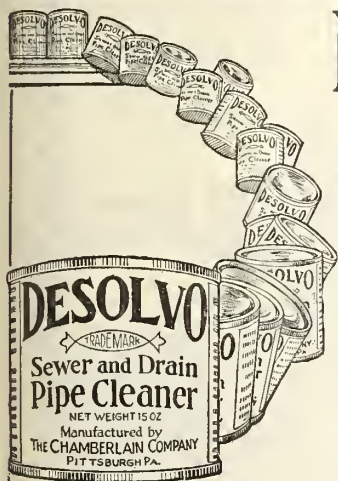
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No. 6 Beaverette cuts perfect threads on $\frac{1}{4}$, $\frac{3}{8}$, $\frac{1}{2}$ and $\frac{3}{4}$ " with greatest ease, speed and convenience. No loose parts—instantly adjustable—simply set the handle. Universal chuck avoids bushing. Cuts a thread while changing dies on other tools. Always ready to use when needed. 100,000 in daily use in leading shops the world over. Write for the Beaver catalog—the most complete pipe tool catalog issued.

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Long Service is Assured with JENKINS Radiator Valves



Fig. 490.
Steam Radiator Valve
Angle Screwed.



Fig. 493.
Hot Water Radiator
Valve Screwed.

These Valves are superior to the average Radiator valves.

They are made from a better grade of steam metal and are much heavier and stronger.

Long and satisfactory service is assured where these Jenkins Valves are installed. The Hot Water Radiator Valves open with a quarter turn of wheel. Full opening equals the nominal diameter of the Pipe. A small hole drilled in the plug permits a slight circulation of water through the radiator at all times.

Steam Radiator Valves are equipped with a Genuine Jenkins Composition Disc, easily and inexpensively renewed and, like all genuine Jenkins Valves, can be repacked under full pressure when wide open.

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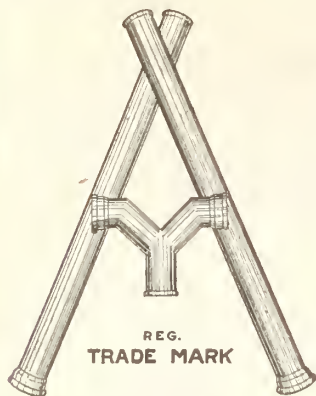
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Jenkins Valves

SINCE 1864



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IT COSTS NO MORE AND YOU KNOW THE JOB IS RIGHT

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RADIATOR HANGER

YOU'LL USE 'EM YET!



Style R

Advantage No. 9

The small price is more than off-set by the saving in steamfitter's wages.

For ANY style radiator; ANY type wall construction.

Write for the whole list of their advantages.

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Dept. 28

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There Was No Monkeying With the Fire Travel

The Burnham Twin Section Boiler has all the strong points of the square sectional. Most important of all, it has the same long fire travel to make its short coal bills.

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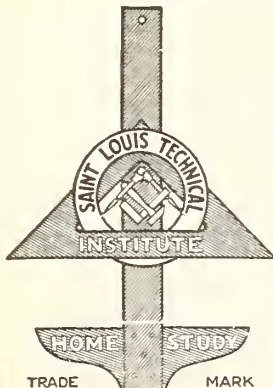
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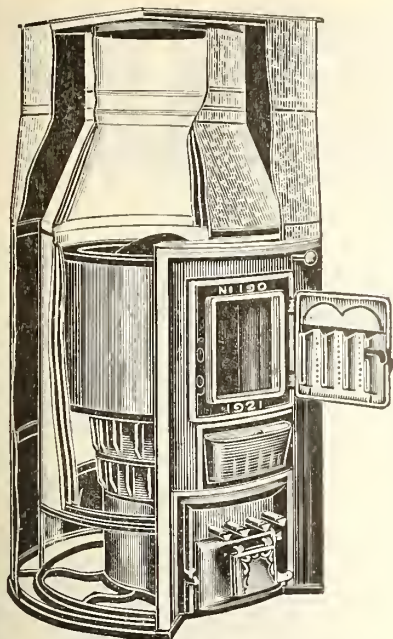
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Banner Pipe Furnace
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Furnace

The Banner Way— Economical, Efficient Heating

This is the season of the year when you receive the rush orders for heating appliances.

We are prepared with heavy stocks of both Pipe and Pipeless furnaces and can give first class service.

The Banner Pipeless Furnace fills a useful place and can be installed in an old house or a new one in one day or less and the margin for the installer is good.

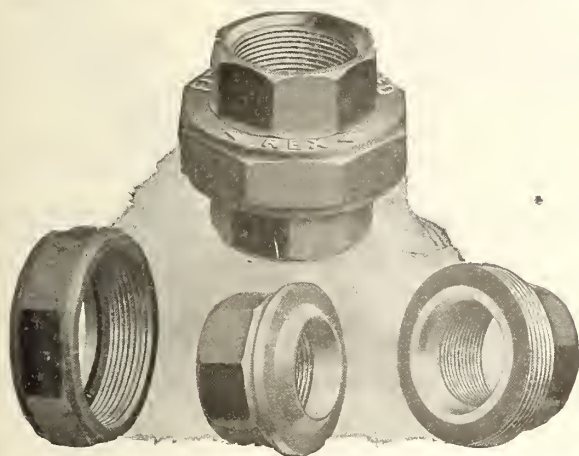
The Banner Pipe Furnace is a high grade, efficient furnace at a moderate price.

The Comfort is our new all cast furnace. See our exhibit at Toronto and London Fairs.

Agents wanted in many places.

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Limited
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- 1 "Rex" Unions are tested and guaranteed to stand 250 lbs. working pressure.
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A Proof of "Rex" Union Superiority
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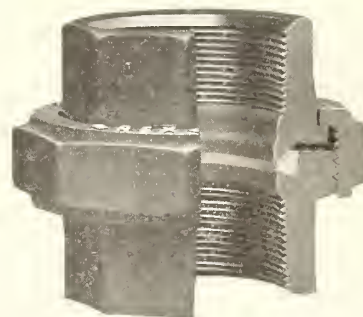
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Dear Sirs:—Confirming our conversation with regard to Rex Unions; as you are aware, we have recently purchased from your Company a large quantity of Rex Unions, and have found them satisfactory in every respect. They appear to have more metal in them than other Unions, and we also find them interchangeable; in fact we are very well pleased with them and intend specifying your Unions on our orders where we can consistently do so.

Yours very truly,

CANADIAN CAR & FOUNDRY COMPANY, LIMITED,

FITTINGS LIMITED
Oshawa, Canada



Manufacturers of
"DIAMOND" PIPE FITTINGS

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This is NOT a
Toronto Range Boiler

TORONTO HARDWARE MFG.
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Suitable for the approaching period of building activity, road construction, etc. This is a line of great importance in making successful, profitable contracts. Our C. T. Brand of Wrought Pipe has been

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Canadian Tube and Steel Products Co., Ltd.
Operating Canadian Tube and Iron Co., Limited
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Tapped Closet Bend

Easier to attach
More permanent
Cost less



Take a
TRIMO
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And a "Trimo" is what you need.

The Wrench with the Steel Frames, Nut Guards, and insertable jaw in handle. Made with Wood Handles in 6", 8", 10", 14" sizes.

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Than Ever

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TWEED ENAMELLED STEEL BATHS

They now look like the expensive cast enamel baths but are the same price as before. Our new patent Roll Rim Enamelled Steel Baths are now ready for shipment—Order samples.

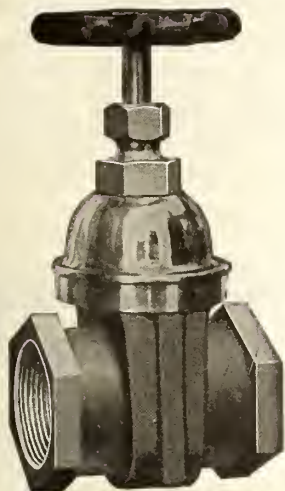
The Steel Trough & Machine Co. Ltd., Tweed, Ont.

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No. 43—Screwed

The illustration here is of our genuine WEBER PATENT Bronze Gate Valve.

All old timers remember it as the best made and best appearing gate made in Canada.

It earned its reputation years ago, and still maintains it. It has stood the test of time.

What better recommendation could one ask for a valve, than to meet all comers for 40 years.

It has had its imitators, but the genuine Kerr Weber Gate leads the procession.

Get out in front and use Kerr's Weber Gates. You will see the difference.

The **KERR ENGINE COMPANY**
LIMITED

WALKERVILLE

Valve Manufacturers

ONTARIO



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How many of your customers are putting off the purchase of a shower because their water-heating equipment is unreliable?

The Marvel Gas Water Heater provides hot water for a shower or bath in a very few moments and at insignificant cost. The tank is extra heavy; boiler and all water fittings heavily galvanized, so that the Marvel, easy and inexpensive of installation, lasts a lifetime without repairs or replacements.

There is good money in the sale of Marvel Heaters.

Bastian-Morley Ltd.
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The Marvel

See the Exhibit of Farrfhern Heating Specialties AND "Morehead" Return Traps

AT TORONTO EXHIBITION
August 25th - September 8th

Architects and Heating Contractors will be especially interested in our Exhibit in Machinery Hall, at the Toronto Exhibition.

We invite you to visit us, to examine carefully the important features of the Farrfhern Heating System. We will be delighted to show you how Morehead Back-to-Boiler Systems are saving fuel daily in hundreds of manufacturing plants in Canada.

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Farrfhern Steam Service
Limited
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If you want a buyer, clerk, salesman, traveler, position, you can reach the best men in the trade through these columns.

If you wish to buy or sell a business, or dispose of overstocks, you can reach a larger number of sanitary engineers through this page than in any other way.

Rates (payable in advance) 2 cents per word. An additional charge of 10 cents for each insertion is made when Box Number is required. Each figure counts as one word. When panels are desired a charge of \$2.00 is made for a panel 1 inch deep by 2½ inches wide. Address all advertisements for this section to SANITARY ENGINEER, 143-153 University Avenue, Toronto, Canada.

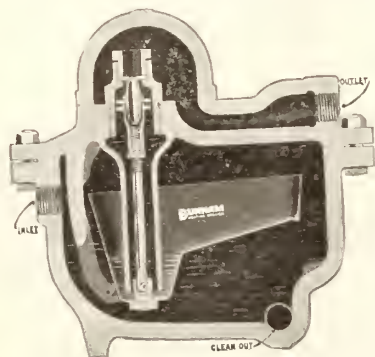
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In a well established plumbing supply house. Wholesale jobbing trade extending from coast to coast. Extra capital of fifteen thousand dollars required for expansion only. Stock on hand, fully paid \$40,000.00. Business will stand thorough investigation. Box 38, Sanitary Engineer, Toronto.

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There's nothing "draggy" about the action of this trap. The shape of the Dunham bucket and a short-coupled leverage obtain unusual power and speed. When the bucket is down and the trap is discharging, the inclined bottom stands practically in a horizontal position. As the water is forced out thru the discharge tube from the bucket, and the bucket begins to rise from the buoyancy of the water surrounding it, all of the water on the bucket "shelf" is suddenly poured over into the water seal. As a result the movement of the bucket is greatly accelerated in its closing action.

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The DUNHAM
HEATING SERVICE
(Made in Canada)

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Many requests have been received by SANITARY ENGINEER for catalogs of electros and other material available showing prices in this new service. These illustrations will be sold to you at cost, ranging from 30 cents to \$1.00, and they will help greatly to make your advertisements pull business.

Send NOW for complete catalog of illustrations and prices to

SANITARY ENGINEER,
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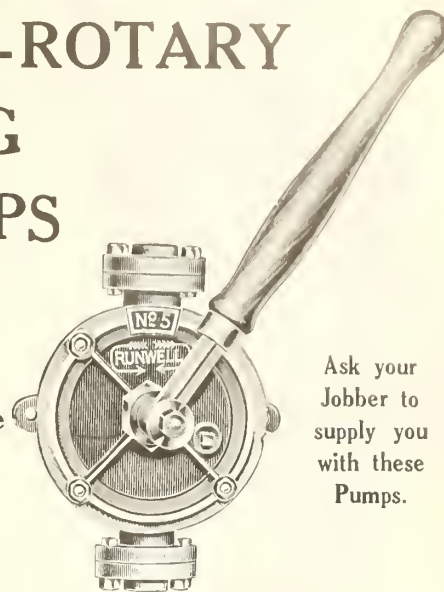
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Ask your
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with these
Pumps.

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HEALTHY, CONVENIENT, ECONOMICAL

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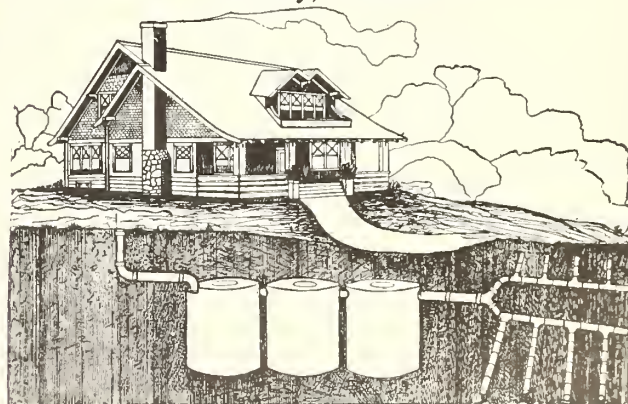
HOMES, SCHOOLS and SUMMER HOUSES.

Write for catalogue and dealers' price list.

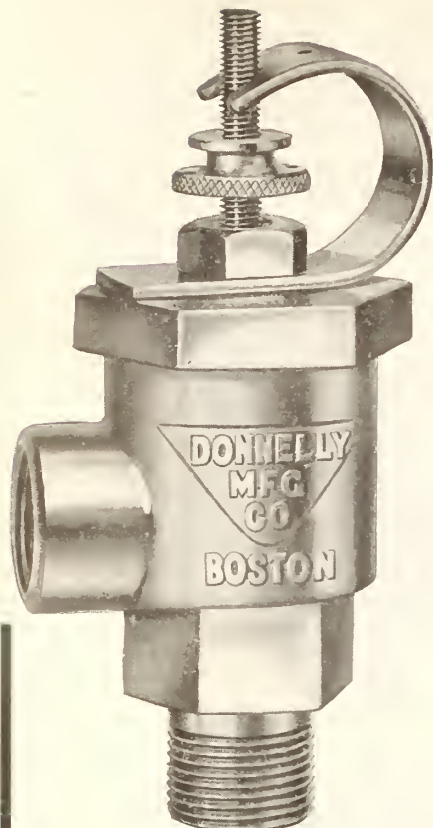
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Lindsay, Ontario



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As
Well
Have
The
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It
Costs
No
More**

Prevents Disaster

YOU can't measure the value of a **Safety Relief Valve** until an accident occurs. With it installed in the water heating system, every possibility of boiler explosion through excess pressure is eliminated—without it property damage and loss of life are always possible.

Even though the householder may not realize the significance of ample boiler protection it is your obligation as a heating specialist to point out its importance and install a dependable safety device in every water and closed heating system.

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Ask your jobber or write us.

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PLUMBING SPECIALTIES
TEN HIGH STREET
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Dart Unions

Locked beyond possibility of leakage

The use of Dart Unions is positive insurance against leaks.

Heat, cold, expansion, contraction or vibration are encountered and overcome.

The joint being Bronze to Bronze and the Malleable Iron Pipe Ends and Nuts being of extra weight ensures that the Dart will "stay put" till taken apart with a wrench.

Your Jobber Sells Them

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—Your Guarantee of Quality—

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Quick Opening Radiator Valves

HERE is something absolutely new; a quick opening Radiator Valve that is made in all sizes from $\frac{1}{2}$ inch to $1\frac{1}{4}$ inches, with and without union and union elbow.

These valves are accurately and stoutly made of high grade metal and carry the same "two-for-one" guarantee, as the famous perfecto Brass Goods.

Made in Galt by the manufacturers of

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Perfecto Brass Goods
Vitro Tanks

GALT BRASS COMPANY, LIMITED

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WINNIPEG

Sanitary Engineer

Plumber and Steamfitter of Canada

Vol. XVII.

PUBLICATION OFFICE, TORONTO, SEPTEMBER 15, 1923

No. 18

And Now "Emco" Perfects a New Steam Radiator Valve

THE new "Emco" Steam radiator valve is built in keeping with the Empire standard of manufacture.

It is of the composition disc type which may be renewed easily. It is not necessary to shut off the pressure when repacking, it may be repacked with the valve wide open. The wheelhandle is baked enamel of the mushroom type.



The "Emco" No. 880 or 881 steam radiator valve is highly nickelled and well proportioned, giving the valve a handsome appearance. This radiator valve was designed to give dependable service, and like all "Emco" products has been fully tested under pressure before leaving the factory.

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Plumbers!

We want you to sit up and know the

“PUSSYFOOT” CLOSET TANK

With the Patent Easily Adjusted Valve

Silent in operation, and tested for shut off, to any pressure up to 150 lbs.

PLUMBERS you take no chance. We stand behind every TANK. Examine one. Note the Tank's quiet refinement, and its rugged, simple Valve. Thousands in use. ALL JOBBERS have stocks of them.

Specify “PUSSYFOOT” to your JOBBER and take no other.

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THE CANADA METAL COMPANY
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Montreal

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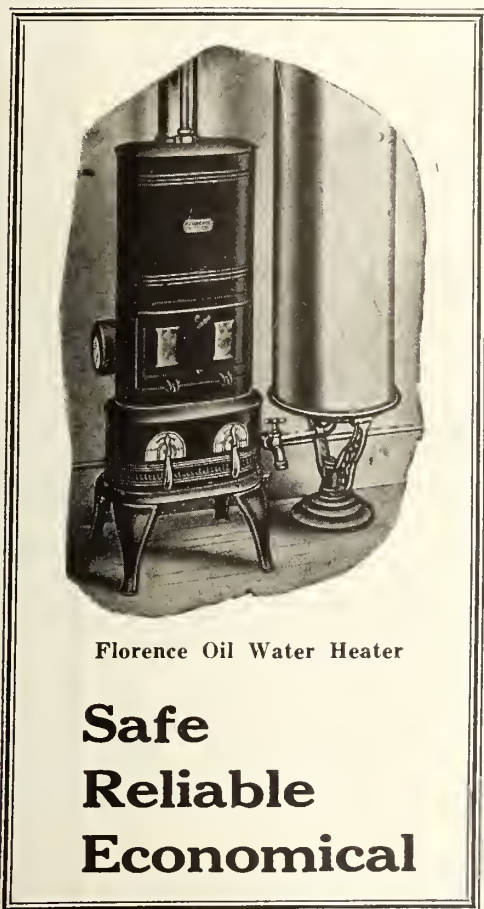
Winnipeg

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Getting Away on Time



Florence Oil Water Heater

**Safe
Reliable
Economical**

There is no set seasonal schedule for the sale of Florence Oil Water Heaters. Always, in every locality, will you find homes doing without the comfort of running hot water simply because they have not been approached.

Get away on time this Fall. Early Autumn, the most productive time of the year, is the time to preach the necessity, the convenience and the comfort of Florence Oil Water Heaters in the home.

Link up with our selling plan. Go after the suburban and rural prospects in your district. The business is there to be extracted; wisely directed effort will result in much profitable business in Florence Oil Water Heaters.

Write now for selling plan, prices and full details.

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St. John, N.B.
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Hamilton
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Into Holes and Corners

THE *Little Giant* goes into the holes and corners to **turn** the pipes and nuts that the conventional wrench cannot even **reach**. This is one important advantage of the *Little Giant's* simplified, end-opening design. Its jaws grip the pipe and let go as quickly as a pair of pliers.

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The reinforced head and extra long handle insure the strength and leverage to easily turn the tightest pipes and nuts.

Long service is assured by the several sets of teeth (two on the smaller sizes and four on the larger ones) that multiply its wearing surfaces.

You can see from the illustration the big advantage of the *Little Giant* design.

Write today for full particulars, and descriptive circular 302E.

*Little
Giant*
PIPE
WRENCH

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CORPORATION
OF CANADA, LIMITED GALT, ONTARIO

GTD

Screw Plates, Taps, Dies, Reamers, Gages
Pipe Tools. Twist Drills, Machine Tools.

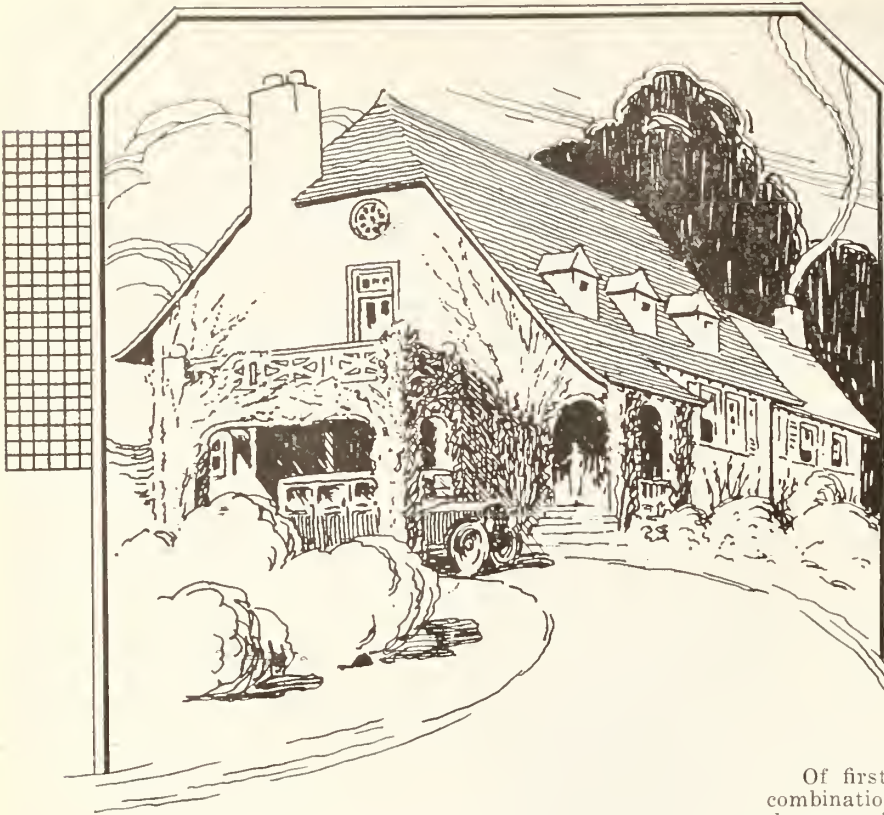
"Standard"

PLUMBING FIXTURES



Posed by Miss Dorothy Knapp of New York, awarded first prize at the Physical Culture Show, Madison Square Garden for having the most beautiful figure of all contestants.

Standard Sanitary Mfg. Co. Limited
TORONTO



Better Better P

The modern bathroom must contain themselves; that embody refinement kept clean and white with the minimum time of the owner. Canadian Solid Ware with all of these requirements.

Of first consideration in every toilet-room is the closet combination, and too great emphasis cannot be placed upon the necessity of using none other than SOLID VITREOUS ware for both closet and tank.

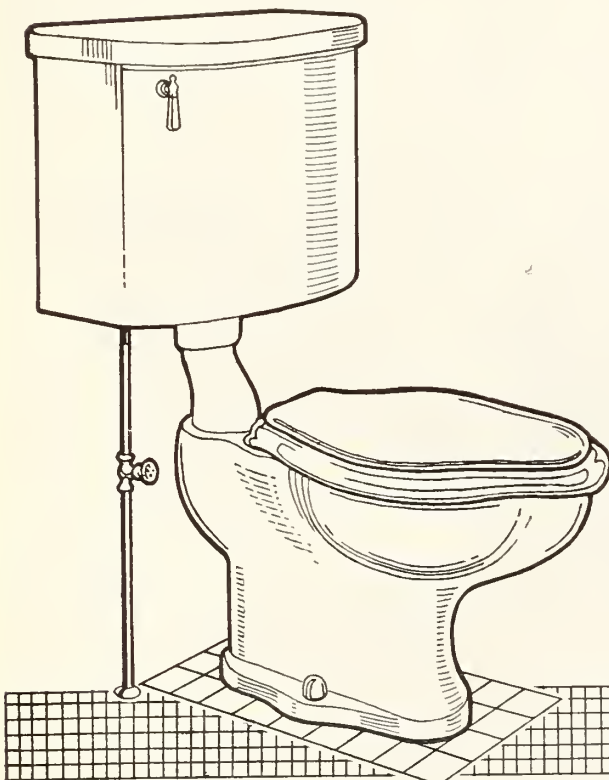
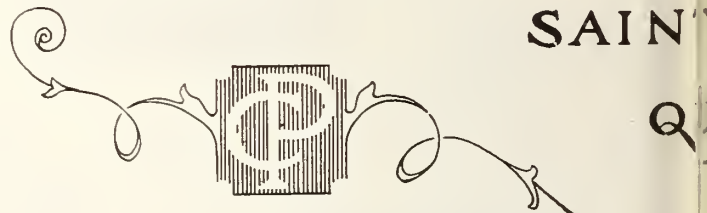
The Quietus Syphon Jet closet with extended front lip as illustrated is the highest development of sanitary science in closet construction. Solid vitreous through and through, it cannot absorb dangerous acids or germs; its smooth surface has no affinity for dirt; its action is quick, strong and positive, yet being made with the wonderful silencing chamber, the sound of its operation cannot be heard outside the toilet-room itself.

The Bellemeade Tank is also SOLID VITREOUS through and through; it has no metal lining to corrode or leak; no joints to split or open up; no paint or enamel to scratch or discolor, no metal to rust nor composition to disintegrate; just burned clay, white, clean, sanitary, everlasting.

CANADIAN

SAIN

QU



The "Quietus" Closet, extended front lip, with "Bellemeade" low-down Tank

The quietest closet combination yet produced. Both closet and tank are Canadian SOLID VITREOUS WARE.

omes Demand bining Fixtures

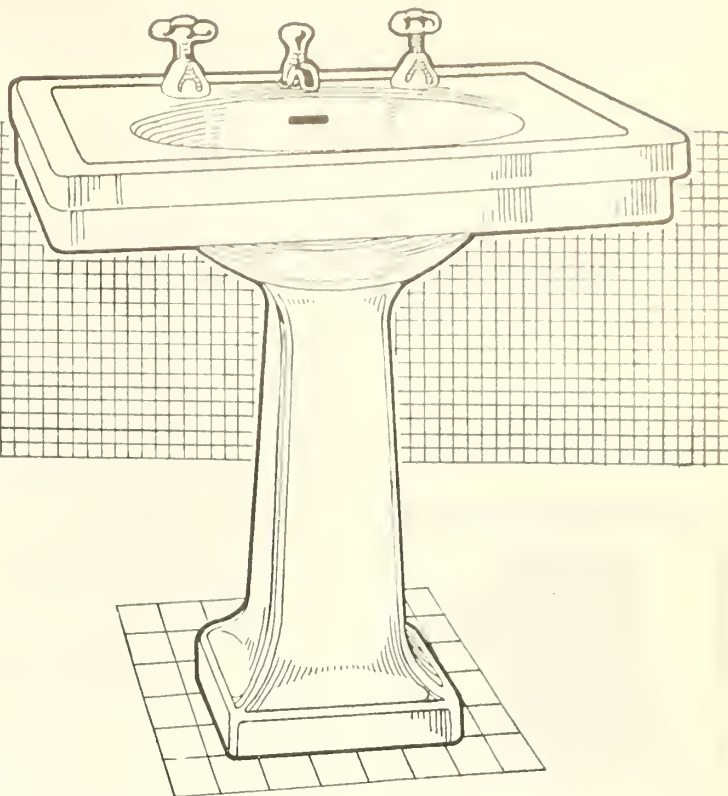
tures that are absolutely sanitary in
n character and design; that can be
n effort, and that will last the life-
reas fixtures comply pre-eminently

For the guests' or master's bath-rooms, no lavatory could express better taste, refinement, nor more sanitary and durable properties than does the "Mount Dome" pedestal lavatory illustrated.

Its large slab, ample bowl, quick-draining outlet, open overflow, and withal its shimmering white clean deep-glazed surface combine elegance, refinement and luxury with practical usefulness in an irresistibly inviting combination.

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Every piece we manufacture is solid vitreous through and through, all clay, burned hard, with a lustrous hard deep impervious glazed surface, possessing no affinity for dirt or germs, as smooth as a pane of glass, and as easily kept clean as a china plate.



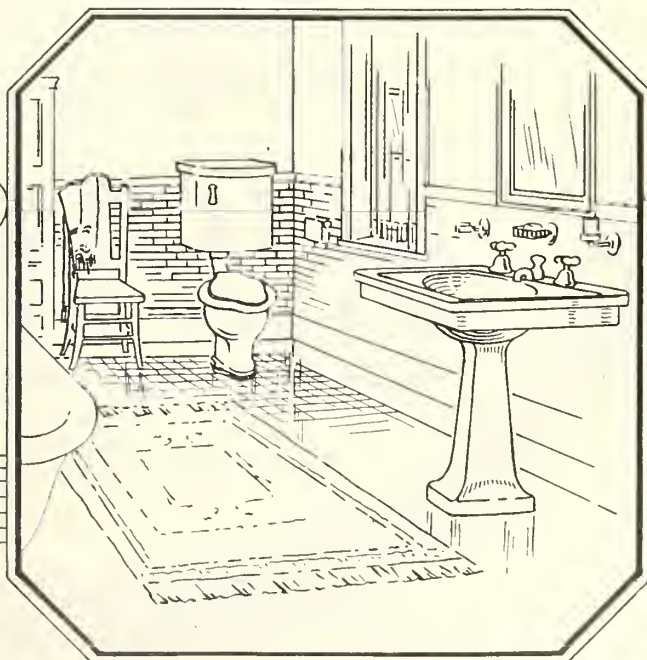
A very charming Solid Vitreous Lavatory of our
"Mount" Series

No. 692-P	Mount Daly	21 x 24
No. 694-P	Mount Dawson	22 x 27
No. 696-P	Mount Dome	24 x 30

POTTERIES LIMITED

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Sales are handled exclusively through
recognized jobbers in plumbing sup-
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You'll Sell More Electric Pumps if You Sell Delco-Light Pumps

THE easiest way for you to sell more electric pumps and to make more money from your pump business is to have a line of pumps—

- (1) *Complete,*
- (2) *Rightly priced,*
- (3) *Backed with a reputable name,*
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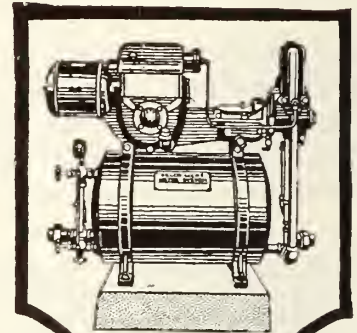
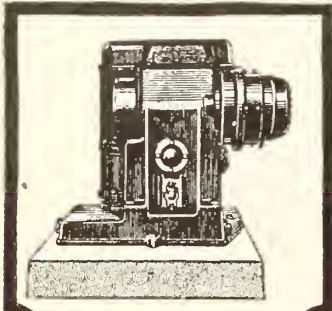
26 styles and sizes of Delco-Light Pumps fill every need you will meet. The prices are below anything of equal quality. The name Delco-Light is known wherever electricity is used in rural communities. And every Delco-Light Pump was designed by the men who have made electricity practical for rural use, who have developed the most successful electric light and power plants for country use.

The Delco-Light distributor has a mighty interesting proposition for the pump dealer or plumbing contractor. Write to your nearest distributor about it.

Delco-Light Co. of Canada, Limited
Toronto, Ontario

DELCO-LIGHT
Water Systems
For Country and City Homes

Distributors:
Electrical Systems Limited
173 King St. East, Toronto, Ont.



Read Mr. Brian's Letter

Mr. Brian is one of the most successful Plumbing Contractors in Ontario. He does a flourishing business, is well rated and uses the Henderson Business Service because it saves him time and money. This letter came unsolicited.

Mr. Brian is not a Guesser

He realizes that he has neither the time nor the facilities for keeping an accurate Resale Pricing System. He is also alive to the fact that it's the prices he gets for his goods and services which determine his success or failure and he pays us the small sum of \$3.00 per month or 10 cents per day to keep him informed on this all important angle of his business.

Profits Guaranteed

Our Pricing System gives the correct selling prices on over 3000 items in everyday use in the Plumbing and Heating Business. No matter how often cost prices change our sheets are changed accordingly. You can quote a price or charge up an article in 2 seconds and feel sure that there is a reasonable profit in it for you. We have had 20 years' experience in the Plumbing and Heating Business and have been furnishing this service to the trade for the past 6 years employing 6 people continually. All of this you can take advantage of for 10 cents per day, or about what you would spend for a good cigar.

**Investigate
To-day**

**Get this Booklet
No obligation**

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LIMITED.
Brantford, Ont.

Send me further particulars
about your Plumbing and Heating
Service.

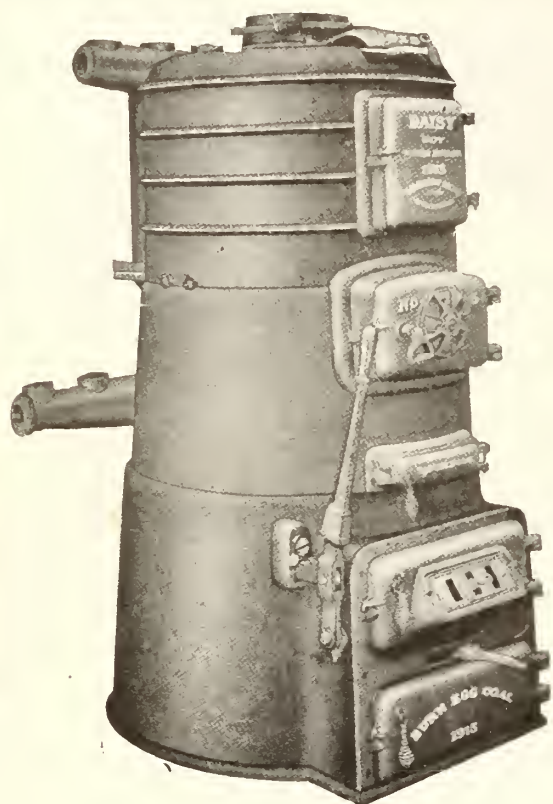
NAME

ADDRESS

S. E. 9/23.

It is Easy Carefree, Dependable

With Daisy Boilers



Leading a prospective customer through a maze of technical heating features cools enthusiasm and beclouds the main interest.

Abundant heat — Easy operation — Dependable service — clean cut assurance on these points will make it comparatively easy for you to sell a heating plant.

In selling Daisy Boilers you have not only **your own** confidence and **our** confidence to support your claims; you have the combined commendations of more than 60,000 contented "Daisy" owners to influence the prospective buyer.

Such united opinion is our greatest single asset.

Warden

Montreal

Branch Office

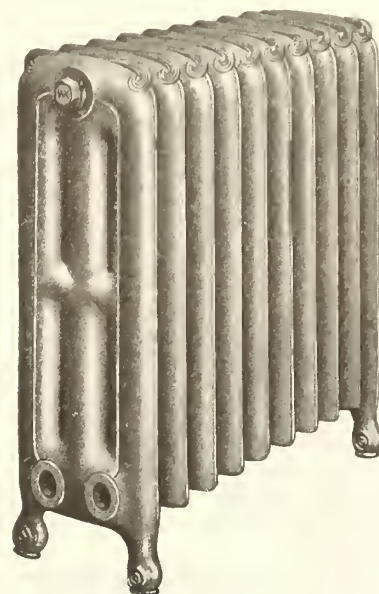
to Sell Heating Service and Viking Radiators

Such testimonials prove that we are selling friends instead of mere customers.

Because homes vary greatly in size, design, and in the matter of exposure to weather, the heating capacity of the boiler must be carefully considered.

We have for 60 years tried to adapt the heating plant to the home—with proven success. You are able, with our co-operation to meet every heating problem with a Daisy boiler of ample rated capacity.

It is easy to sell **CAREFREE, DEPENDABLE HEATING SERVICE** if you sell Daisy Boilers. Combined with Viking Radiators they form the perfect heating system.



King, Ltd.

Que.

13 Simcoe St., Toronto



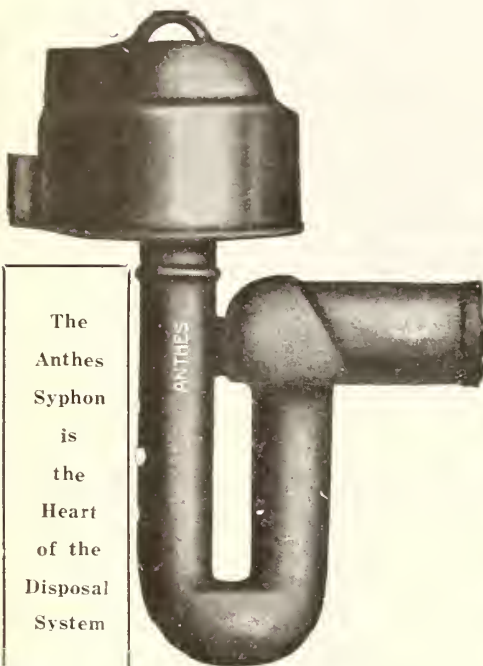
You'll Have to Take it to Him

FEW INDEED are the disposal systems sold in a show room.

The men who are making big money to-day in the rural plumbing field are the fellows who get muddy boots and soiled trousers from trailing the farmer across the south pasture to the wood lot and who there, right on the ground, put over their sales story.

Farmers and suburbanites everywhere need sewage disposal systems; they know they need them—but will not come of their own accord to buy them. To help these people to a better standard of living and to make a handsome profit in so doing, is the privilege of the Sanitary Engineer.

To-day, with bitter winter just over the hill, the farmer is more than ordinarily ready to discuss indoor toilets and the value of a supply of hot running water, but he will not come to your show room to discuss these things—you must take your story to him.



The
Anthes
Syphon
is
the
Heart
of the
Disposal
System

Anthes Foundry

Limited

Toronto and Winnipeg

Manufacturers of Cast Iron Soil Pipe and Fittings



SANITARY ENGINEER

PLUMBER AND STEAMFITTER OF CANADA

ESTABLISHED 1907

PUBLISHED TWICE MONTHLY

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No. 17

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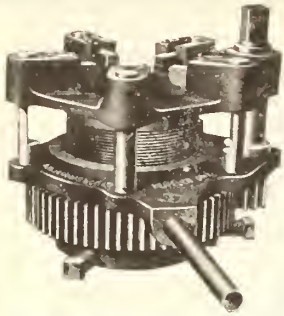
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All Sizes from 7/8 in. to 12 in. Cut by One Man at One Cut

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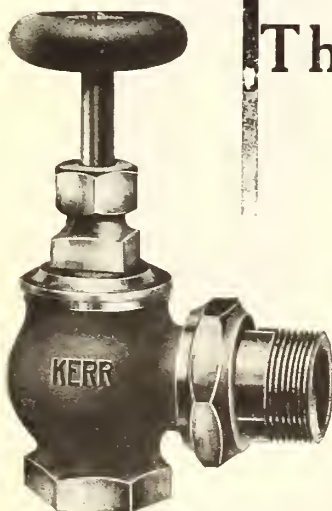
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Get These Better Valves from Your Jobber.

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Valve Manufacturers

ONTARIO

Established
1907

Circulates
Throughout
Canada

Sanitary Engineer

Plumber and Steamfitter of Canada

Published
First
and
Fifteenth
of Month

Vol. XVII

TORONTO, SEPTEMBER 15, 1923

No. 18

Showroom and Display Window Triple the Trade of Toronto Plumber

John W. Oram Finds Lucrative Business in Replacement Work in Large Residences—Most Houses in District Have Four and Five Bathrooms—Sells Gas Ranges and Electric Heaters in Store

"THE plumber who does not believe in the value of the showroom and window display as a business-pulling factor in his establishment has never tried it out," was the comment of John W. Oram, who does a large plumbing, heating and tin-smithing trade from his shop at 836 Yonge Street, Toronto, Ont. "I can say this with assurance, because I have operated both ways and attribute the greater part of my present trade to the fact that I have a well-equipped showroom and a window where I can display my goods so as to attract the attention of those passing along the street.

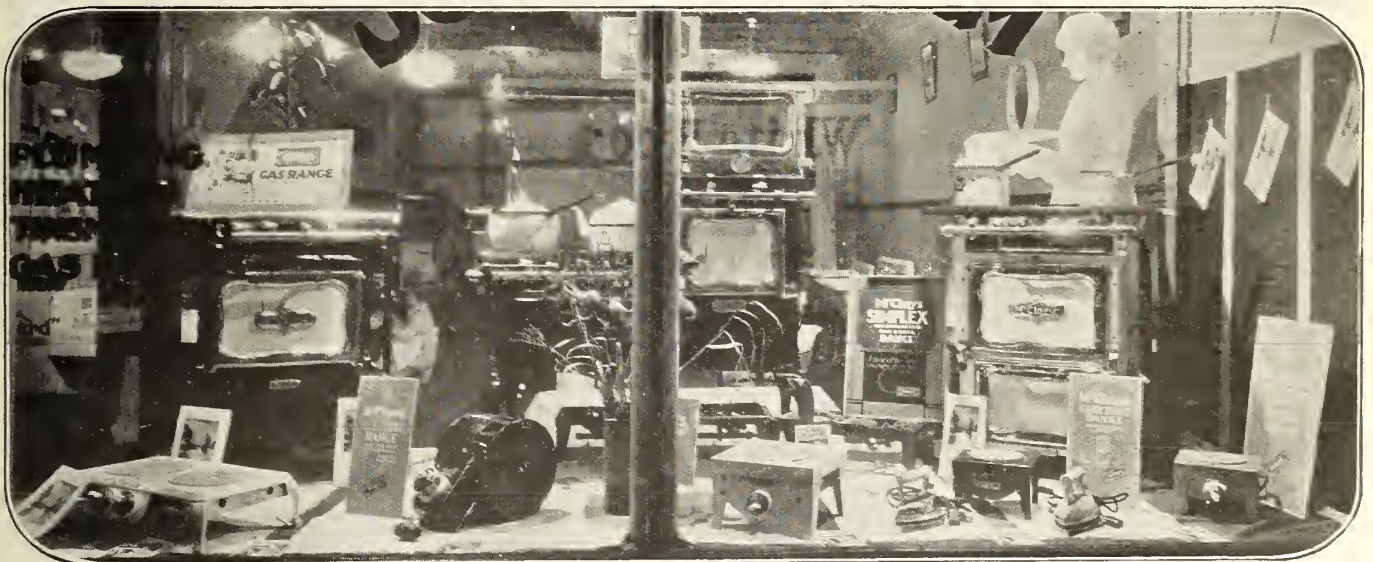
"When I was located across the street, previous to moving into my present shop about four years ago, I had not the same facilities for display at my disposal. Since moving the plumbing end of my business has practically

tripled in volume, an increase that must be credited almost entirely to my windows and showroom. This is my only form of advertising and I do not go out after business—haven't time to do so, even if I felt inclined to—so there is very little else I can credit with the new business."

There is the fact to be borne in mind, however, that Mr. Oram has been in business in the same locality for a number of years and has gained a reputation for his work that is standing him in good stead now. Located in the heart of the Rosedale district and with in easy access of The Hill district, two of Toronto's more exclusive residential districts, Mr. Oram is admirably situated for the work that is now occupying the greater percentage of his time—that of putting in additional bathrooms and similar equipment in the large residences of the district.

"Most of these houses have four and five bathrooms in them now," stated Mr. Oram. "If they haven't, I'm putting them in. Putting in additional equipment of this nature and doing replacement work is keeping my staff so busy these days that I have no time to devote to new installation work. Several times recently, contractors have come to me to see about having installation work done in houses they are erecting, but I have not even quoted figures on the jobs. The other business is much more satisfactory and keeps my staff well occupied."

Many of the large residences in which Mr. Oram finds the bulk of his trade have bath fixtures which were installed before the art of equipping bathrooms had advanced to its present position. They are not as convenient and have not the artistic appearance of the more modern styles and it is replacing such



Window trims play an important part in the business of John W. Oram, Toronto. The trims are changed regularly, plumbing displays in various arrangements occupying the space most of the time. Seasonable heating trims, like the one illustrated, are used frequently and have been productive of much business.

goods that the showroom and window displays play such an important part.

The show window of the O. am store is changed frequently, displays of complete bathroom sets in different styles being shown regularly. Inside the store, all the latest designs in fixtures are to be found down the right side of the light, well-arranged store, making selections a matter of little difficulty. Light-colored walls and white metallic ceiling add to the general, light, clean appearance of the room, making a visit to the shop a pleasure, while a number of chairs placed at convenient intervals down the length of the store, provide the female visitor with an opportunity of sitting down and making her selection of fixtures at her leisure and with a minimum of exertion, a feature that has been much appreciated.

Having a large store at his disposal, Mr. Oram has been in a position to go after stove business, which has linked up well with his furnace sales and tinsmithing business. A good selection of gas ranges is carried, being shown down the left side of the store, while electric grills, electric and gas water heaters, and a small line of electric utensils are also carried, taking up little space and producing a good profit.

As in the plumbing lines, it has been found to the advantage of the firm to show the heating goods in the win-

Defends Canadian Galvanized Sheets

A. T. Enlow Makes Defence of Canadian Product
—Charge That Galvanizers are Thinning Zinc Coating Does Not Apply Here

A VIGOROUS defence of Canadian made galvanized sheets was made by A. T. Enlow, president and manager of the Dominion Sheet Metal Corporation Ltd., Hamilton, Ont., recently in discussing an editorial appearing in an American publication in which the statement was made: "It has been charged that our galvanizers have thinned the zinc coating so that our galvanized sheets and wire are no longer durable. Also that other foreign sheet galvanizers have been doing the same thinning as American."

"In this connection," says Mr. Enlow, "it is a matter of great pride to us that the Canadian galvanized sheets which have been made here in Hamilton for the past eight years, have always contained a uniformly heavy coating and on that account we have never received a single complaint as to their rusting under ordinary exposure.

"It is, of course, possible to subject galvanized sheets to conditions where coating even though heavy will not protect them permanently, as, for instance, in factories where acid fumes exist, and around coal mines and similar places where free acid is in the air. For ordinary city and especially country use our galvanized sheets have been found very satisfactory and it is largely due to the excess amount of coating which we put on these sheets as compared with the very thin coating of inferior metal as employed by many galvanizers whose sheets are exported to Canada. As compared with Canadian made sheets, we have seen many imported brands which, under ordinary exposure in cities, have shown traces of rust or have turned brown within two or three years from the time of installation, whereas a well-galvanized sheet should last almost as long as the building itself."

dow, displays at seasonable times of the year having proven their value repeatedly. An attractive window trim devoted to cooking and heating equipment, which was shown recently, appears in connection with this article.

Speaking of the sale and installation of furnaces, Mr. Oram stated that here, too, the firm's work was confined principally to large replacement jobs, the work being done principally in resi-

(Continued on next page)



The large, light showroom that forms a necessary part in the business of John W. Oram, Toronto, is credited with bringing in much new business. The size of the room allows ample space to show a number of complete bathroom sets down the right side and gas ranges, gas water heaters and other goods down the left side.



Showing a bathroom, fully equipped, in one show window and a wide range of small bathroom fittings in the other has been found a good combination by one Ontario plumber who is firmly convinced of the sales value of effective window displays in selling his goods.

Suggest Scholarship Plan for Sanitary Engineers

Representative Gathering of Master Plumbers Endorses Scholarship Plan and Campaign of Publicity—Specialized Teacher Training for Instructors

ACTION was taken on two important matters at a recent convention of master plumbers. One was in connection with the apprenticeship problem and the other in connection with the higher education of the "plumbing engineer."

The apprenticeship plan, as finally endorsed, provided:

1. That a man be employed as educational director, at a salary included in the proposed budget, to devote his time to promoting training for the industry.

2. That the national association advocate training for the plumbing trade in part-time and evening vocational schools.

3. That a standard course of study for these schools be adopted only after the Minneapolis course has been tried out and reported upon. It is suggested that the committee be kept in mind when the standard course is formulated. The outline of the standard course should be published in the T. E. B. Bulletin, so that suggestions and criticisms of the members of the trade can be secured. It was recommended that the necessary instruction on gas should be inserted in the standardized course.

4. That instructors in plumbing be sent to some central training point for specialized teacher training, their expenses to be paid by the local associations.

5. That a campaign of publicity be carried on by the educational director.

The estimated cost for the first year comprises a budget of \$12,000, which was approved, and which is divided: Salary of educational director, \$4,000; traveling expenses, \$1,500; rent of office and clerical help, \$2,500; printing, \$2,000; miscellaneous items, \$2,000.

E. L. Bowman will probably be the educational director, and he will take up his duties at the headquarters of the Trade Extension Bureau, Evansville, Ind., about the middle of August.

The movement to provide opportunities for the higher education of the master plumber was warmly advocated in a presentation of the subject by Frank J. Fee. The convention voted to instruct the incoming president to appoint a committee to put the scholarship plan "in effect."

SHOWROOM AND DISPLAY WINDOW

(Continued from previous page)
dences where the firm had handled a similar job in the plumbing line.

Asked what class of heating equipment was being installed, Mr. Oram stated that he was installing hot water systems exclusively, over ninety per cent. of the residences in his district being equipped with this type or ready

to change their old systems for the hot water.

Some idea of the volume of business handled by the firm may be gained from the fact that from twenty to twenty-five men are employed constantly in the various departments. Mr. Oram does much of the outside work of the business himself, estimating on and supervising jobs, the office end of the business being handled by a competent bookkeeper who also assists in the showroom. The large tinsmithshop needed for the amount of business handled is immediately to the rear of the offices, which are located at the back of the store.

DISCONTINUING BUSINESS

Saskatoon, Sask.—It is reported that E. Riley is discontinuing his plumbing business in this city.

LAVATORIES IN GASOLINE STATIONS

Toronto, Ont.—Under new local regulations, all gasoline service stations in the city will be required to furnish lavatory accommodation. Regardless of the \$10,000 cost requirement, the plans for all new service stations will have to be approved by the city architect.

INSTALLING ELECTRICAL BOILERS

Winnipeg, Man.—A number of city firms and institutions are installing electrical boilers, it is stated here. The Northwest Laundry is installing an electrical heating plant of 500 h.p. capacity, while Grace Hospital is figuring on a similar installation of 900 h.p. capacity. Residences too are included in those being fitted for electrical boilers.

Advertisements Tell of Contracts Secured and Reasons for Selection

Large Jobs Won in Competition Make Excellent Boosts in Securing Additional Business—Repair Shop Features One-Trip Service for Complete Jobs—Importance of Good Plumbing for Health and Comfort

IN THE advertising being done by plumbing and heating men of late, the tendency has become more marked to emphasize work that is being done or has been done by the firm, a feature that is particularly good in the instance of firms securing large contracts.

This idea has been carried out in a large advertisement used by J. McIntyre, Whitby, Ont., who, under the heading "McIntyre Scores a Triumph" goes on to tell of securing contracts on continuation schools at Pickering, Brooklin and Claremont. He then continues:

"We believe the awarding of these contracts to us is of great significance to the town of Whitby as well as ourselves. The competition for this work came from such large centres as Toronto, Peterborough, Lindsay, etc., and while our price was, perhaps, not always the lowest, (although due to our geographical position insofar as the three vil-

lages mentioned are concerned, we were in a much better position to offer a better price than outside concerns) we were awarded the contracts.

"We attach further significance to these contracts because in each instance we not only had the different school boards to deal with but the architects also. As it is the duty of the architect to see that a perfect job is turned over to the school board, it is necessary that the contracts be awarded to concerns that are both reliable and capable. We were in the happy position to have many fine jobs to our credit in all these districts and therefore had the advantage of our competitors."

On the Pickering Continuation School this firm was awarded the steam heating contract, on the Brooklin Continuation School the heating, plumbing, ventilating and tinsmithing contracts, and on the Claremont Continuation School the con-

tracts for plumbing, heating, and ventilating.

Equipped Dairy Building

The same idea is carried out in the advertisement of J. A. Langelier, Ottawa, Ont., who announces that "the plumbing in connection with the new Ottawa Dairy Building was installed by us. Our experience in handling large contracts enabled us to meet the requirements in this up-to-date new dairy building with the utmost satisfaction. We can extend the same service to you and guarantee genuine results at a cost that will mean a saving to you."

Cowan's, Brantford, Ont., emphasize the importance of good plumbing to health and comfort, while the Plumbing Repair Shop, Windsor, Ont., point out that the completeness of the service extended by this firm enables them to do the work on one trip, the store's slogan being: "One trip does the job."

(Continued on page 21)

McINTYRE
Scores a Triumph
—ON—
Plumbing, Heating, Tinsmithing
Securing contracts on Continuation Schools to be erected at
PICKERING, BROOKLIN, CLAREMONT.
The aggregate cost of these schools is approximately \$100,000.00.

We believe the awarding of these contracts to us is of great significance to the Town of Whitby as well as ourselves. The competition for this work came from such large centres as Toronto, Peterborough, Lindsay, etc., and while our price was, perhaps, not always the lowest, (although due to our geographical position insofar as the three vil-

lages mentioned are concerned, we were in a much better position to offer a better price than outside concerns) we were awarded the contracts.

"We attach further significance to these contracts because in each instance we not only had the different school boards to deal with but the Architects also. As it is the duty of the architect to see that a perfect job is turned over to the school board, it is necessary that the contracts be awarded to concerns that are both reliable and capable. We were in the happy position to have many fine jobs to our credit in all these districts and therefore had the advantage of our competitors."

On the Pickering Continuation School we were awarded the contract for Plumbing, Heating, Ventilating, Tinsmithing. School Board—Mr. E. B. Patterson, Mr. W. J. Cox, Mr. J. Spall, Whitby.

On the Brooklin Continuation School we were awarded the contract for Plumbing, Heating, Ventilating, Tinsmithing. School Board—Mr. J. F. Fudge, Mr. J. A. Underhill, Mr. Toulson, Mr. J. H. Hinde, Lindsay.

On the Claremont Continuation School we were awarded the contract for Plumbing, Heating, Ventilating, Tinsmithing. School Board—Mr. J. F. Fudge, Mr. J. A. Underhill, Mr. Toulson, Mr. J. H. Hinde, Lindsay.

Let us take care of your Plumbing, Heating and Tinsmithing Wants.

We guarantee every job we do and are prepared to back our guarantee. Mr. J. J. McIntyre, Whitby, Ont., and J. J. McIntyre, Whitby, Ont., are the expert advisers at your service.

A WORD TO THE WISE IS SUFFICIENT.
Let us put your Plumbing and Heating Apparatus in good shape now. We can supply Plumbing, Furnace and Stove Repairs for any stove or furnace made in America.

J. McINTYRE
Hardware, Plumbing, Heating and Tinsmithing
A phone call and we are at your service—phone 60

Have Your Bathroom—
—First Class—

Have it second to none among the rooms of your home. Your family will love it right. Let us install our modern sanitary equipment, such as porcelain tub, wash basin, toilet, footbath, etc.

PARKER BROS.
Plumbers and Tinsmiths
Chesley

The Plumbing
in connection with the new
Ottawa Dairy Bldg.
was installed by us

Our experience in handling large contracts enabled us to meet the requirements in this up-to-date new Dairy Building with the utmost satisfaction.

We can extend the same service to you and guarantee genuine results at a cost that will mean a saving to you.

Our field service is comprehensive and we can supply the equipment and materials for the installation of your plumbing.

J. A. LANGELIER
312 Wellington Street
Tel. G. 581-2, 581-3

ONE TRIP DOES THE JOB!
Plumbing Repair Shop at Your Service

Chas. A. Smith, plumbing contractor, of Waterville, has placed in your service a repair shop equipped for all repairs more to the plumbing line. If it troubles you, phone Barnard 1888 and have plumbing repair shop call and do your repair work on one trip.

Phone this for Picture use
ONE TRIP DOES THE JOB!

Plumbing Repair Shop
Phone Barnard 1888

Plumbing That Lasts
Time is the judge

You should be very discriminating in choosing the plumber to fix your plumbing. If such work is done carefully you will have no end of trouble. We have the endorsement of many homes in this city for our superior workmanship.

WE CONCENTRATE ON PLUMBING, STEAM AND HOT WATER HEATING ONLY

Every Housewife loves a Good Kitchen Sink

Most of the Housewife's work is in the kitchen. It is so important it can easily be traced to it. Make her work easier. Mr. Husband, see to it that when the plumbing is causing trouble it's fixed right! We expect to hear from you.

JOHN DAISLEY
Opposite Central School
111 14th St. W.
Phone 2201

Good Plumbing
IS VERY IMPORTANT FOR YOUR HEALTH AND COMFORT

Let us do your work and you will get the best. Call 318 for estimate.

COWAN'S
THE PLUMBING SHOP
11 COLLEGE ST.
Phone 111

The tendency to tell of good-sized jobs secured and handled by the firm is being used effectively in the advertising of many sanitary and heating engineers, several good examples being noted in the accompanying advertisements.

"Things Are Improving—No Longer Morning After Night Before But Getting Toward Dinner Time"

Hon. W. R. Motherwell

Canada Now Largest Exporter of Wheat—Decreasing Death Rate of Children—A Few Inexperienced Farmers Doing All the Talking

PREDICTING the greatest crop in the history of the West, Hon. W. R. Motherwell, Federal Minister of Agriculture, in an address before the Canadian National Newspapers and Periodicals Ass'n stated that there was room for justifiable optimism in connection with the agricultural industries of this country and that much of the talk of low prices and farmers' inability to buy the necessities of life was far from representative of general conditions in the agricultural sections of this country.

Speaking of agricultural problems Mr. Motherwell said: "We never came across a question that was not capable of solution and this one is the same as the others. We know that we are going through a trying period but we know the reasons. We know that we have raised our standards of living and that our present revenue cannot support us. The value of farm products is much less than before the war and we are trying to keep up higher standards on old methods of farming. We can reduce the costs of production but it is hard to do so without reducing the quality. We can reduce the standard of living but we don't want to do that.

"Another way is to improve our methods, improve farming practice and raise the quality of our cattle. We must get more revenue if we are going to meet the expenses of our present standard of living. If we are bound to sport a \$3,000 car we cannot do it on a 3,000 lb. of milk per year cow. A 4,000 lb. milk cow is the average in Canada and it takes that much to keep it. The average cow in Canada only maintains itself. By taking the diversification of activities on Canadian farms, something enables us to make a living but many do not know where it is.

Too Much Exclusive Farming

"Something does pay, but there is too much of a disposition toward exclusive farming, particularly in the West, and too much of a disposition among farmers to plunge into debt. The average difficulties come through going injudiciously into debt. A good doctrine to preach to farmers is 'Pay as far as you go and if you cannot pay, don't go.'

"The farmer must realize that it is better to go steadily up the ladder rung by rung and study the business rather than go too fast and slip, bringing down all the rungs with him. Some farmers are going into business in cities and towns without any experience.

That is the trouble in many western communities. They retire to a village or town and enter business without training and get a big line of credit. Much the same thing applies to farming where many inexperienced hands with inefficient methods are unable to make a living.

"We can increase our revenue by improving our livestock, our methods and by having more production on the basis of quality. The United Kingdom is served by many parts of the world where labor is cheap. We have to come into competition with that labor and we have to adopt their standards or improve our quality. In dairying we have not slipped behind but other countries have gone ahead and we have lost our pre-eminence in the world markets in dairy supplies. But it is significant that last year we sold butter on the British market at much higher prices than our competitors because of the quality standards. If we have quality, farming can be made profitable even in the West where the biggest chances are taken. In that country we should scatter the chances.

Largest Exporter of Wheat

"In the last forty years Canada has sprung up from almost nothing to be the largest exporter of wheat in the world. When we hear blue ruin talk we should think of what we have accomplished. The railways are another criterion of development in Canada. They got a big knock when the war was over due to the high cost of labor and the difficulty of getting increased rates. Even the Canadian National Railways



HON. W. R. MOTHERWELL

which were looked upon as a bankrupt concern a few years ago are now in a much better condition. Their revenues and those of the C.P.R. have greatly increased. The C.N.R. is looked upon as an impossible concern by some, but it is like the babe left on the doorstep and it is a fact that its net revenue has shown a much better position lately than a year ago. Revenue was increased by five million dollars in the first seven months of the year.

"Things are improving. It is no longer the morning after the night before but is getting along nearer dinner time.' The death rate among children under one year in Canada is steadily declining. One of our provinces has the lowest death rate for this class in the world. We have great cause for satisfaction in the improvement of health, and another thing, Canada has never had any such terrible calamity as that which has befallen our Eastern ally, Japan. Such things we are free from. In our forests and mines there is a great revival of activity, so much so that an agitation has sprung up for the protection of pulpwood by our manufacturers who are afraid of depleting our forests. Insects and fire do more than the hand of man to destroy our forests. If we would take care of our forests by preventing fire and insects from destroying trees, reforestation will take care of itself by nature.

Mines

"Regarding our mines, we are very hopeful regarding the future. We have 90 per cent. of the asbestos of the world

(Continued on page 20)

Plumbers Mix Pleasure With Instruction at Interesting Outing

Visit of Over One Hundred Plumbers of Hamilton, With Friends From Toronto, Brantford, St. Catharines, to Welland, as Guests of Page-Hersey Tubes, Ltd., Proves Interesting and Instructive—Many Novelties and a Sumptuous Repast

By Staff Representative

ONE of the most enjoyable and educational outings with which any group of Canadian sanitary and heating engineers have been connected was that held on Tuesday, Sept. 11, when master plumbers of Hamilton, along with visitors from Toronto, Brantford, St. Catharines and other points, journeyed by motor car to Welland, where they were the guests of Page-Hersey Tubes Ltd., to a sumptuous

an organization for the holding of educational and social gatherings. The proceedings of a number of such gatherings held last winter in Hamilton, were outlined fully in Sanitary Engineer and so successful has been the plan that plumbers in other cities are planning to adopt it. H. E. Rooke, Page-Hersey Tubes Ltd., was chief speaker at one of these meetings, and it was as result of favorable impressions carried away from that meeting that he extended the invitation on the part of his firm for the same group of plumbers and their fellow craftsmen to the outing held on Tuesday.

Start the Procession

The procession of motor cars lined up in front of Standard Sanitary Mfg. Co. offices on Jackson St., Hamilton, at 8.30 on Tuesday morning, where cars were numbered and passengers allocated. Living up to their reputation most of the plumbers were there promptly on time and a fairly early start was made. The splendid road and comfortable cars owned by the craftsmen of Hamilton lent every comfort to the drive through the beautiful Niagara peninsula, commonly known as the Garden of Canada. The weather could not have been better. At St. Catharines, the proportions of the procession were increased by the addition of district men and the drive was continued on down to Welland. Headquarters was made at the Hotel Reeta and when this galaxy of cars arrived the city right around the hotel, looked almost as active and prosperous as Hamilton itself. There were a few late arrivals, but they were to be excused because they had come all the way from Toronto, and Major Anthes' deduction that he could make better time by going to Welland around by Niagara Falls, was not borne out. The genial Major was well fitted out for the occasion, however, someone having counted at least five coats which he donned before setting out to brave the return trip. These coats, be it explained, took up the surplus room in the rear seat of the car so as to minimize the amount of side-play.

When the last car had arrived there were over one hundred present. All wore identification tags supplied by

Standard Sanitary Mfg. Co., and distributed to the visitors as they arrived by Messrs. Hagen, Cardwell and other local craftsmen. After a brief visit, dinner was announced and a most complete and enjoyable repast it proved to be. Among those at the head table were H. E. Rooke, Page Hersey Tubes Ltd.; T. Wallace, Major Anthes, Anthes Foundry Co.; E. Holt Gurney, Gurney Foundry Co.; Chas. F. Rogers; C. G.



CHAS. A. ROGERS,

Secretary and one of the prime movers in connection with the organization of Hamilton master plumbers, which held a series of successful meetings last winter and who thanked Page-Hersey Tubes, Limited, on behalf of the plumbers for the enjoyable outing provided on Tuesday last to Welland. Mr. Rogers is manager Standard Sanitary Mfg. Co., Hamilton, Ont.

noonday luncheon and inspection of this pipe making industry in the afternoon.

The invitation was extended by officials of Page-Hersey Tubes Ltd., to the master plumbers of Hamilton, Ont., who, under the guidance of Secretary Chas. A. Rogers, local manager, Standard Sanitary Mfg. Co., Percy Moore, Wm. F. Newell, W. Brittain, J. Allen, F. Lang, W. A. Canning, Harold A. Rogers and J. R. Thompson, have formed



WM. NEWELL,

Hamilton, Ont., Committee member of the Hamilton organization of master plumbers, who assisted in the successful arrangement of the outing to Welland.

Stewart, president Ontario Society, D. S. & H.E.; G. F. Frankland, secretary Ontario Society D.S. & H.E.; Mr. Duff, proprietor of the Welland Tribune, and others.

During the dinner the crowd participated in the singing of a great many songs with great gusto under the active and capable leadership of Harold A. Rogers and his resonant voice. A splendid feeling of good fellowship prevailed and everyone joined in the singing. Special numbers were rendered by Tom Jenkins and Captain Wotherspoon. A novel feature which was carried out so capably that it threw a scare into some

Sanitary Engineer Camera Man With the Plumbers



Group of plumbers from Hamilton with visitors from Brantford, Toronto, St. Catharines, and other points, photographed by Sanitary Engineer outside the hotel after dinner at Welland, Ont., just before starting for the inspection of the Page-Hersey Tubes, Ltd., Plant.

of those present, was when E. Cardwell of Welland took a violent fit and was seized and placed on a table. The surgeon upon being called pronounced an operation immediately necessary. His kit of tools when dropped on the floor shook the hotel, but he proceeded immediately to work under the vest of the patient with his forceps. It was necessary for him to place his knee on the patient's chest and pull with all his might before he was able to bring relief to the sufferer by pulling out a huge liver. The patient was enabled to proceed with his meal after the operation, though some opined that as the organs which had been removed had been taken from near the chin, that he must have been "a high liver." Others thought it a pretty "raw" trick.

A Novelty

Another novelty introduced toward the end of the meal, fortunately, was the visit of a noted worm specialist, who lectured on the connection existing between the plumber and the health of the community. As an example of what worms would do, certain tablets and matches were passed to each person. Upon being lighted, the tablet immediately assumed the proportions of something more nearly resembling a snake than a worm and the Professor made his exit amidst much laughter.

At the conclusion of the dinner and the toasts, Mr. Rooke spoke briefly, welcoming the plumbers on behalf of his company. He stated that the company felt honored by the presence of

such a representative group of craftsmen and that he had been looking forward to just such a gathering ever since his visit to the men in their own organization in Hamilton. He outlined the program to be followed.

C. A. Rogers spoke on behalf of the plumbers present, pointing out that the gathering was in continuation of the educational and social efforts being made by the group which had been organized in Hamilton and that they were glad of the opportunity of mixing pleasure with instruction, which was provided by the dinner and visit to the



PERCY A. MOORE,

Hamilton, Ont., Committee member of the Hamilton organization of master plumbers which had another of its successful meetings at Welland in connection with the dinner given by Page-Hersey Tubes, Ltd.

Page Hersey plant. He introduced an old friend of his, Mr. Duff, proprietor of the Welland Tribune, as the chief speaker.

Some Secrets

Upon rising to speak Mr. Duff, known in the local Rotary Club and other organizations as "Plum Duff" let the gathering in on some secrets concerning certain members. He hoped that the operation performed on their local craftsmen had been successful in removing some of his "gall" and that if so he would be a better man. He told how Major Anthes had been responsible for considerable of the editorial opinion of the Toronto Telegram in years gone by, when that paper had once cast aspersions on Hamilton by showing under the heading "A bird's eye view of Hamilton" a picture of a small frame building on a hillside on which was the sign "Spectator." A small hill in the background was the Hamilton mountain. Mr. Duff could not see how Hamilton craftsmen could think so much of Major Anthes after that, especially when he had sunk from the realms of journalism to be a manufacturer of cast iron pipe.

After these banalities, Mr. Duff straightened away to a very interesting talk on the early history of Welland and district, from the time the red men made munitions there down to later times, and subsequently to the developments in connection with the canal which, as he stated, is soon to change the whole aspect of the peninsula.

(Continued on page 29)

Heating and Ventilating Department

Asks for Suggestions for Improvement of Plan for Heating Water Tank

Heating a Thirty Gallon Tank With a Bent Pipe Coil in the Furnace, the Tank Being About Twenty Feet From the Furnace—
What Size of Pipe Should be Used?

Editor Sanitary Engineer:

Would you please look over the sketch sent under separate cover, for a 30-gallon tank to be heated with a vent pipe coil in a furnace. The tank will be about 20 feet from the furnace. I could put it 10 feet if you think best. Would it give better satisfaction by having the tank beside the furnace? Would you consider galvanized pipe better than $\frac{3}{4}$ inch?—C. W. Barker, London, Ont.

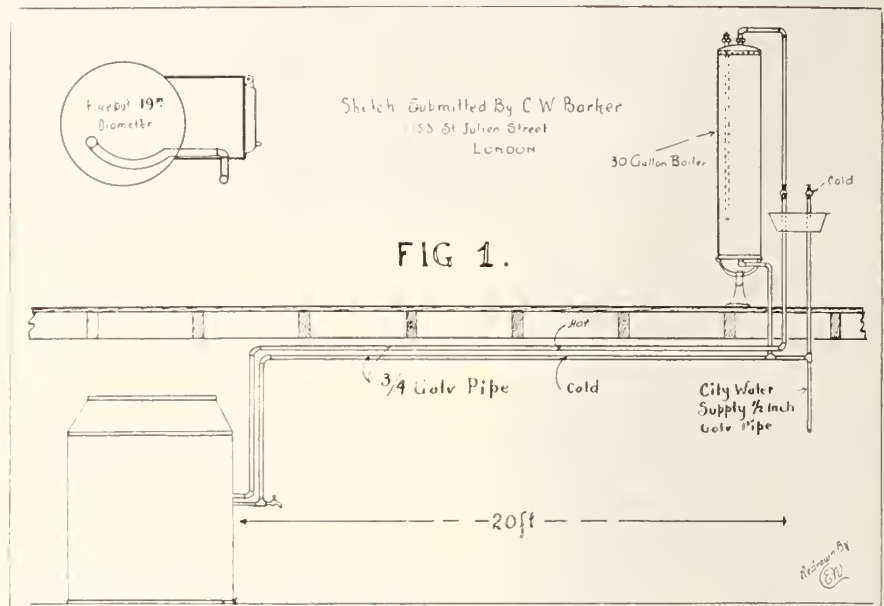
Answer: The sketch submitted by our inquirer is shown in Fig. 1, and it will be noted that the cold water supply is connected to the return pipe on the heating connections. This should not be so connected. As a matter of fact there is quite a difference between heating pipes and supply pipes, and, when installing such a job there would be possibility of disturbance in the flow or return of heating pipes.

Let us assume, however, that this job was installed. There would be a tendency to get the hot and cold water mixed and without doubt the hot water when expanding would find relief through the cold water faucet if it was opened at a time when all the water in the range boiler was at a high temperature. Furthermore, there would be a strong tendency for the cold water to be forced through the coil in the furnace when the hot water faucet was turned, thereby leaving the hot water in the range boiler.

Regarding the distance between the furnace and the range boiler, this would be better if placed as close to the coil as possible. If there is no objection to the range boiler being placed in the basement near the furnace, such a position would be preferable every time.

Figure 2 shows the proper way to make this installation. Note that the two heating pipes have absolutely no connection between the cold and hot water, which is as it should be.

If our reader will follow the pipe lines in Fig. 2 it will be seen that the cold water supply is connected directly with the range boiler, (see tube in boiler.) As soon as the hot water faucet is opened the cold water is delivered to the boiler through the tube, forcing the hot water out at the top of the boiler through the hot water faucet. On the other hand when the cold water



faucet at the sink is opened, cold water flows direct from the city mains to the faucet opened.

With regard to the size of pipe to be used, we would advise 1-in. pipe for the coil and piping to the point where the heating pipes turn to a vertical direction, using a 1-in. by $\frac{3}{4}$ -in. elbow looking up on the top, or flow pipe, and on the bottom pipe, or return, use a 1-in. by $\frac{1}{2}$ -in. by $\frac{3}{4}$ -in. tee.

The reason why the trap is forward on the lower pipe is so that all the sediment can be drawn off the coil through the $\frac{1}{2}$ -in. faucet.

The same method should be adopted of connecting the boiler up in the basement.

—Technical Editor.

"THINGS ARE IMPROVING"

(Continued from page 17)

in addition to a large proportion of the nickel, to say nothing of our other mineral deposits.

"There is justification for optimism and faith, but it is not enough merely to say 'Every day in every way, etc.' That may help, but if we have the desire and the will to excel, we will get there.

"Considering the upheaval of the war I am surprised that we have got reconstructed to the present stage in the short five years since the war. I cannot see how things could be expected to be much better than they are to-day. You who have visited the Fair and noted its growth and the quality of the goods shown cannot help but be optimistic.

"I believe optimism is justified regarding the present and future condition of our country and I would not take that stand unless I was convinced. There are difficulties in the way which we must surmount. What kind of a world would this be if we did not have difficulties? What are these difficulties for but to surmount? If it was downhill with the wind in our backs all the time it would be very uninteresting. Honest labor is one of the zests of life and a great builder of character."

Mr. Motherwell was followed by Hon. J. S. Martin, Ontario Minister of Agriculture, who drew attention to the large crowds of well dressed, happy and prosperous people attending the Exhibition as an indication of justifiable optimism.

"Farm product prices are not bad compared with pre-war prices," said Mr. Martin, "but the farmer says, 'When we

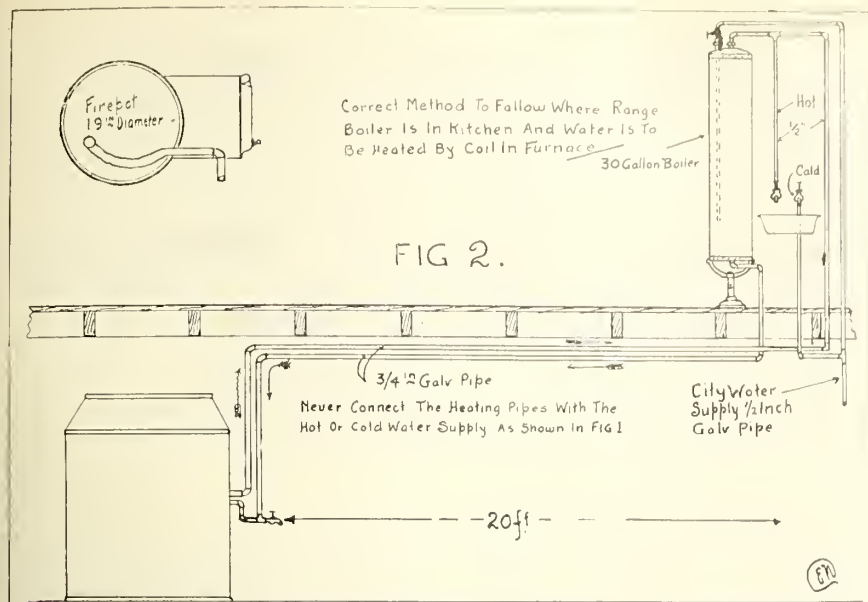


FIG 2.

sell we take what the buyer offers and when we buy we have to pay his price.' Some manufactured goods are passed on to the retailers by manufacturers who wash their hands of them and the dealer often forgets that the war is over.

"The average farmer in Ontario is not going into debt. There are some exceptions where farmers bought land at the peak and have to pay high interest charges where, with little farming experience, they are suffering, but there are few of them and they do the most talking. The ones who are making money are the ones producing good products. There is too much poor stuff being produced on our farms. It is a matter of education."

Pointing to the value of associations among farmers to encourage better production, Mr. Martin outlined the work of the Norfolk Association in Ontario. By insisting upon regular spraying and uniform system of packing, the apples produced by members of this association are in much greater demand than can be supplied, whereas apples in other parts are said to be rotting on the trees.

"There is no reason to be discouraged over the agricultural outlook. The present is a natural condition, it stresses the need of quality and efficient farming and things are certainly showing improvement right now," said Mr. Martin, in conclusion.

HOPE TO SAVE \$100,000

Toronto, Ont.—This city hopes to save from \$75,000 to \$100,000 by the regulation of water charges, according to the number of taps and appliances used, and the amount of water consumed. It is intimated that an equitable distribution of the charges may even make possible a slight reduction in the rates. A question to all water-users, for the purpose of ascertaining the number of taps and appliances in use on the premises, is the first step in the campaign.

ADVERTISEMENTS TELL OF CONTENTS

(Continued from page 16)

"Plumbing that lasts. Time is the judge," is the caption that accompanies a cut of Old Father Time seated in a bathtub in the advertisement of John Daisley, Prince Albert, Sask.

Want Some Last Minute Changes Made in New Sales Tax Regulations

Objections Made by Some Hardware Wholesalers That Tax is Not Sufficiently Concealed—Difficult to Establish Costs on Individual Articles

ALTHOUGH the budget provisions and amendments covering the question of the sales tax were announced during the month of May, the firms which will be affected by the tax are still somewhat in doubt as to how various clauses of the regulations will be interpreted by the Government. To date, no rulings have been issued, although they are expected to appear at any time now, in order that those interested may thoroughly digest their contents before January 1, 1924, when the provisions of the Act come into effect.

Another reason why these rulings are awaited with more than a passing interest by the trade is contained in the fact that there are certain clauses in the Act which, if interpreted as the majority of those who have studied them feel that they will be, a certain amount of dissatisfaction may result.

Local wholesalers and jobbers have recently discussed the matter, but have refrained from making any representations to the Government for amendments or alterations pending the issuance of the Government rulings, the idea being that it would be futile to ask

A timely advertisement in the form of a paid reader in the news columns of the local daily is used by F. H. Hamilton, Kingston, Ont., who heads his reader: "Plumbing and Heating Plants Should be Examined Soon."

The copy reads: "There are many wise people who lay in a supply of coal and wood during the summer months, and then, like the busy ant, they have no worries in the winter when the cold spells get their less thoughtful neighbors into trouble. Important also is the inspection of your plumbing and heating system throughout the entire house—for of what use is coal and wood if the furnace into which it goes or the plumbing system in connection with it should happen to be out of order, or in such a condition that the first attempt to use it would cause disaster? Sometimes a little, unnoticed flaw, or worse still, and more frequent, some defect that is known but is allowed to run along without attention, will cause a great deal of trouble and loss in the very coldest months of the year when every part of the plant should be at its best.

"Be wise and see to your plumbing needs now while the plumber has time and while you do not need your plumbing plants. Call F. H. Hamilton, phone 1420W, or drop a line to him at 131 Alfred street, for satisfaction in all kinds of plumbing and heating service."

for changes until it is known definitely what interpretation is to be given. A change might be asked for that would be entirely unnecessary under the Government's ruling, provided that ruling were somewhat different from the interpretation now being taken out of the particular clause.

Not Altogether Concealed

One of the principal objections made by the trade to the Act as it stands at present is that the six per cent. tax is not altogether a concealed tax, it being felt that a concealed tax would be much more preferred, and eliminate much extra figuring and waste of time.

Under the Act, a licensed producer, manufacturer, wholesaler or jobber selling to an unlicensed wholesaler has to show separately on his invoice the amount of tax paid, a procedure not viewed favorably from either end.

In the first place, the purchaser looks at the notation "Tax Paid \$—." He knows that this is six per cent. on the original cost of the goods, so by a simple calculation, he is able to ascertain what the original cost was and

(Continued on page 23)

Tinsmithing and Sheet Metal Work

Blow Pipe Manufacturers Make Y Branches With Sides Made in One Piece

These Branches Require New Development of a True Section Through the Mitre—Working Drawing Shows How Pattern is Made

Written for Sanitary Engineer by O. W. KOTHE, Principal St. Louis Technical Institute

MANY blow pipe manufacturers are beginning to make Y branches similar to the one shown in this working drawing. The idea is that both sides are made in one piece, so that the seam will run down the line 10-11 and 9-10 of the elevation. A sharp bend is made along the line X-1 and from this the semi-circles are shaped out. In branches of this kind, there is no throat, as both branches come together in point 1 and the collars that attach to the edges produce the throat.

First, draw the base line for section A, as 9-10, and then draw the angles for the branches, making the height at pleasure, and then draw the angles of branches 1-10 and 1-11 to suit the diameters of those pipes, as at C and D. In order to proportion the area through the bend, take one-half the diameter of the small branch C or the distance 4-10 and set as 9-X. This point X will be the starting point for the bend line, and both branches will be laid out from this line. After this describe the sections B and C in the same number of parts we have in A. From X draw lines in branch C to points 1-2-3-4 and then triangle the remainder as 4-5, 5-6, 6-7, etc. Observe that the point X in A establishes a part of an arc, and hence, the remainder of the section is divided in three parts to correspond with section C.

From X draw lines to the point 1-2-3 of B and after this triangle the lines as 3 to 4, 4 to 5, 5 to 6 and 6 to 7.

Branches of this kind require new development of a true section through the mitre, as the old style branches do, while true lengths are developed in much the same way. The one at N is for the small branch and at M is for the large branch. Developing the small branch lines we pick them as X-1-2-3 and set them on a horizontal line. Then from the starting point we erect a line equal to the length X in section A. On the other ends, we erect lines to equal those half diameters in section C, as 2-3. After this pick the line 4-5 and from the last point, 4, we set over on a horizontal

line and erect a line equal to the line 4 in section C. After this we pick line 5-6 and from 5 on base line we set over and erect a line equal to section C, line 6. Repeat this until lines 8-9 and 9-10 are determined. The true lengths for

the smaller prong are developed in the same way and are set in diagram M.

To start the pattern draw a line and make it equal to X-1 of N, and then pick the girth as 1-2 from B, also 1-2 from C, and describe the small arcs from point

Standardizing of Register Sizes, Furnace Pipe and Fittings

Resolutions Favoring Certain Sizes to be Further Discussed

THERE is a movement under way to standardize on register sizes as well as on furnace pipe and fittings and thus eliminate what many claim to be a large number of needless sizes.

At the last meeting certain resolutions were adopted. These with additional propositions will be discussed further. The resolutions are printed in the following:

Resolutions Adopted

For sidewall registers:

That register box openings be at least of equal capacity to the leader pipe serving it.

That 8 x 10-in. registers have a throat of $6\frac{1}{2}$ x $10\frac{1}{2}$ in. outside measurement, with a $2\frac{1}{4}$ -in. base extension.

That 9 x 12-in. registers have a throat of $6\frac{1}{2}$ x $12\frac{1}{2}$ in. outside measurement, with a $2\frac{1}{4}$ -in. base extension.

That 10-in. leader pipes have a 10 x 13-in. register having a throat $6\frac{1}{2}$ x $13\frac{1}{2}$ in. outside measurement and a $2\frac{3}{4}$ -in. base extension.

That 12-in. leader pipes have a 12 x 14-in. register, having a throat of $8\frac{1}{2}$ x $14\frac{1}{2}$ in. outside measurement and a $4\frac{3}{4}$ -in. base extension.

In connection with the above a recommendation was adopted that 11 x 13-in. registers also be made for 12-in. pipes as optional for installations where a 10-in. leader is too small and a 12-in. pipe too large for the room requirements,

under which condition an 11 x 13-in. register will serve the purpose.

That 14-in. pipes have 16 x 14-in. registers with a throat of $11\frac{1}{2}$ x $14\frac{1}{2}$ in. outside dimensions and a base extension of 8 in.

That registers of the same base extension shall be used, in corresponding sizes, for both first and second floors.

That a height of $2\frac{1}{4}$ in. from the floor line to the opening be recommended to register manufacturers as a standard measurement for roughing in sidewall registers.

A resolution was also adopted that furnace pipe manufacturers make only one size collar for the boot for which it is intended, viz.: 8-in. collars for 8 x 10-in. registers; 9-in. collars for 9 x 12-in. registers; 10-in. collars for 10 x 13-in. registers; 12-in. collars for 12 x 14-in. registers.

The meeting also went on record adopting a standard of one size larger over the single head for collars on boots for double head registers.

The following sizes for floor registers were adopted as standard:

8-in. pipe: 8 x 10-in. register.

9-in. pipe: 9 x 12-in. register.

10-in. pipe: 10 x 12-in. register.

12-in. pipe: 12 x 14-in. register.

14-in. pipe: 14 x 16-in. register.

16-in. pipe: 16 x 20-in. register.

This recommendation for floor register sizes carries with it the pipe sizes given with them.

1 in the pattern. In the same way pick the spaces from A as X-4 and X-5 and set them in pattern as the arcs show. From here on we develop each branch separately working the smaller first. So pick the true length X-3 and describe this, using X in pattern as the center, cross arcs in point 2. Then describe arc 3 and pick true length X-3 and describe this, using X in pattern as the center. Repeat this with point 4 and then pick line 4-5 from N and using 4 as centre in pattern cross arcs in point 5. Then strike arcs 6 and 7. Cross these with true lengths 5 and 6, and 6 and 7, from N. Continue in this way until points 9-10 are established. Repeat this same process for the large branch, only using the true lengths from N and the girth spaces from band A.

This gives the net outline of the pattern and edges for riveting on the ends must be allowed extra, as well as for riveting to the collars. To assemble this branch bend the line 1-X in a cornice break, or over a stake quite sharp, seeing to it that the bend is considerably deeper at the top than at the bottom, where it should hardly be noticeable, because this base must form a complete circle and have no off-sets. Then shape up the sides to form semi-circles, taking care that the shape is as near to the actual fittings as possible, because that

makes it easier in riveting together and fitting the corners on. Sometimes it is necessary to wrap a wire around the small ends, in order to hold them in position while putting the collar on, because they are apt to enjoy an elongated shape. If the collars are riveted on to this elongated shape, it is rather difficult to straighten them out and, therefore, the workman must always see that the ends are perfectly round before he goes ahead too far.

WANT SOME LAST MINUTE CHANGES

(Continued from page 21)

knows at once the profit being made by the vendor. Naturally, the vendor does not care to have this part of his business known to each purchaser and would prefer a concealed tax where it would be possible for him to include the tax in his sale price without making a separate item of it on the invoice.

Nor is the purchaser, even though he may secure this information, entirely satisfied with the Act as it affects him in such cases. Often, he will be making purchases of a large assortment of goods in dozen, half-dozen and other sized lots.

These will appear in itemized form on the invoice, the costs totalled up and

then the tax item added on separately. This means that to learn the actual cost of each item on the invoice, the purchaser will have to figure it out for himself, taking up valuable time that might be used to better advantage elsewhere, whereas if the tax were a concealed one, it would be included in each item, thus making the full cost of each item clear at a glance and eliminating all the extra work.

There are other minor points on which all members of the trade are not in accord but they are points not so general, nor do they stand out so prominently. In the case of most of these, it is presumed that the Government rulings will clear up most of the misunderstanding now existent and that the Act as it comes into force on January 1, 1921, will prove acceptable to the average business firm in almost every respect.

CONVENTION GOES TO FORT WILLIAM

Fort William, Ont.—The 1924 convention of the Sanitary Inspectors' Association will be held in Fort William, it has been announced by Sanitary Inspector A. J. Bolus, who attended the recent convention in Calgary.

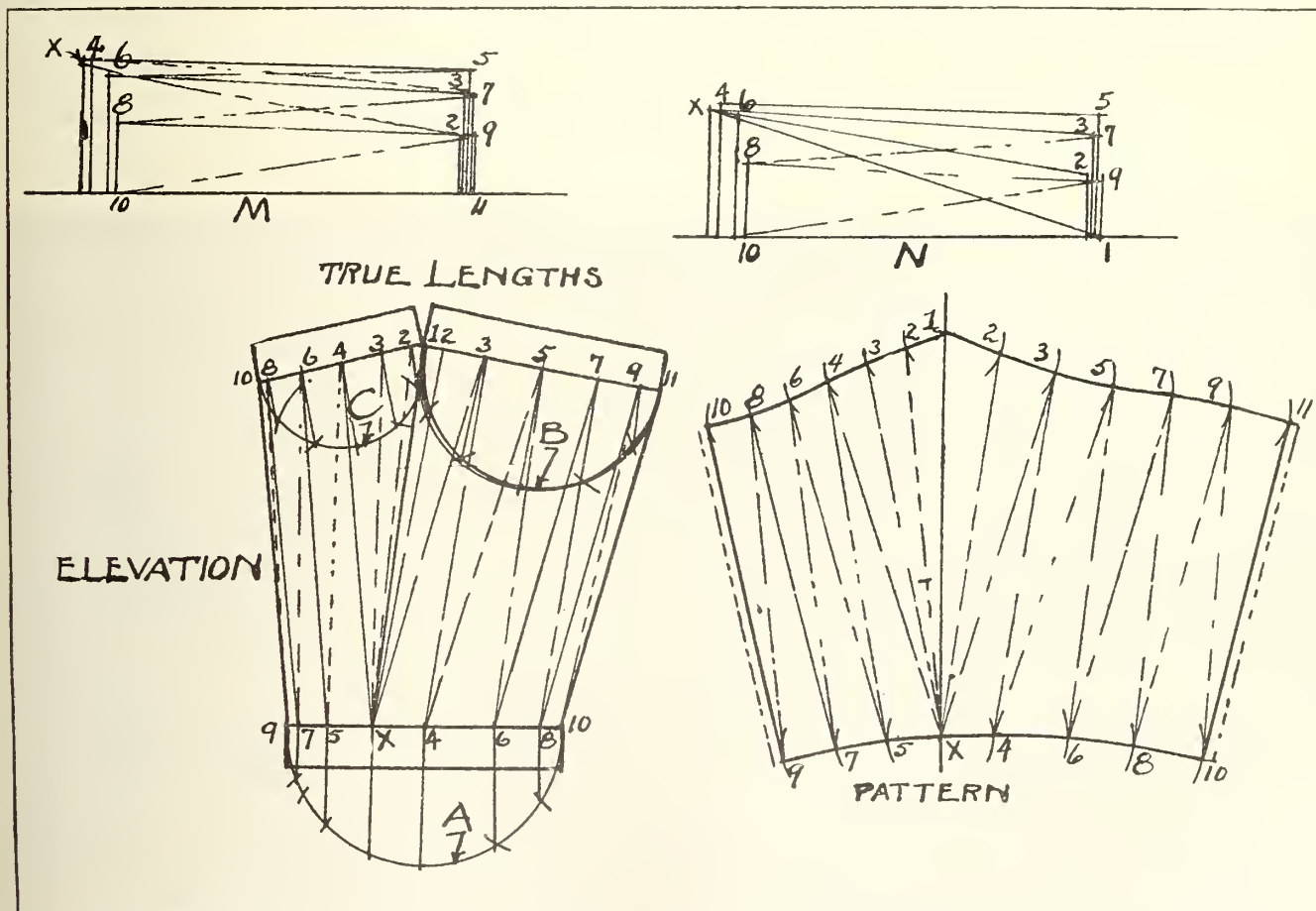


Illustration Shows "Y" Branch in Which Both Sides Are Made in One Piece, a Method Being Adopted by Blow Pipe Manufacturers Now.

To Help Compose the Fall Ads

Suggestions by courtesy National Trade Extension Bureau.

FROST PROOF CLOSETS

for garages, warehouses and other buildings which have no means of heating. The water supply pipes and valves are located below the freezing point, underground. In use they give the same service as any other modern sanitary closet. After flushing they drain free of water to prevent freezing.

Now is the time to figure on this. Let us help you.

Phone, (name here), address.

Flowing Hot Water

which comes at the turn of a faucet—you can have it at small cost. All the comfort and convenience of running hot water can be yours with a (.....) water heater. It pays for itself in a few years by the saving in fuel alone. No fuel is used in heating water except when hot water is needed. Ask us for further particulars.

Phone No.

Address

(Your name here)



MAT. T. E. B. SERVICE EVANSVILLE, IND.

Letters to Prospects for Water Closets, Heat Conservation Material and Sanitary Sinks

FIRM LETTERHEAD

Date.....

Dear Mr. (or Mrs.).....

Are you embarrassed by the noise your old water closet makes?

Are you ashamed of the growling and hissing that can be heard throughout the house—particularly when there are visitors around?

Then it's time to replace the old-fashioned, insanitary water closet with one that is silent and sanitary. During Good Health Week, your friends and neighbors who read the same newspaper that you do, will learn how easy it is to get a new water closet or any other plumbing fixture on our easy terms. Many of them will visit our store, to see for themselves how modern, sanitary water closets protect the health of the home.

Don't be disturbed over the disorder caused by the exchange of the new closet for the old. It will be slight, unless your hidden plumbing is in bad condition. (In that case, it's best to call us at once, before a doctor is needed!)

During Good Health Week, or at any other time, you are invited to come to our store to see every modern plumbing fixture. You'll be surprised at the low cost of good plumbing—and especially, the moderate price of a sanitary water closet.

Yours for Good Health and Sanitation,
YOUR NAME HERE

FIRM LETTERHEAD

Date.....

Dear Mr. (or Mrs.).....

Any person, family or business, in order to be thrifty, must learn how to save. It is a wise home-owner who uses every precaution and takes advantage of every opportunity to save heat in these days of high-priced coal. Since wasted heat is wasted money—you will appreciate the following suggestion.

Ninety-five per cent. of all basements, according to reliable statistics, are over-heated. The over-heating is due to bare pipes and uncovered furnace or boiler, and is a constant drain on the coal pile.

The loss of fuel by wasted heat has been given more serious thought by the public this season than ever before, and has resulted in the largest sale of (.....) pipe covering and asbestos boiler cement we have ever known. To customers who ask why we did not bring this preventable loss of heat to their attention before now we reply that never before was there so great a need to save fuel.

(.....), pipe covering forces the pipes to convey every bit of heat from furnace or boiler to the rooms to be warmed. The saving is much larger than you can imagine. We have some interesting figures that we would like to show you on the first opportunity you have to visit our store. We shall expect you soon.

Yours for more heat from less fuel,
YOUR NAME HERE

FIRM LETTERHEAD

Date.....

Dear Mr. (or Mrs.).....

Milk and cream is pasteurized, and dairy herds are tuberculin tested; meats and canned foods are carefully inspected; fruits are shipped in refrigerator cars. Yet, despite these precautions, only the vigilance of the good housekeeper protects the family's food from contamination.

Especially in Summer, there is a danger of foods becoming unfit for use. Icing protects food only while in the Refrigerator. After that—it's up to you! The kitchen Sink, where so much food is washed and prepared—if old-fashioned and insanitary, can easily be the source of serious illness.

A modern Sink is impervious to grease and bugs, and cannot harbor disease germs. Made of one solid piece of enameled iron, porcelain or vitreous china—it has no cracks or crevices. It can be cleaned—clean—in the twinkling of an eye.

A modern, sanitary Sink set at proper working height, with hot and cold water connections, is a great labor-saver, too. See them on display in our store during Good Health Week, or at any other time convenient.

Yours for a sanitary kitchen,
YOUR NAME HERE

Displaying Sanitary Equipment for Good Health Week Campaign

Established Week in October for Good Health Can be Prepared
For by Plumbers and Heating Engineers to Good Advantage—
Two Effective Window Displays of Closets

YOUR windows are forcible advertising mediums. Get the full value out of them by keeping them attractive.

The window on the right offers another excellent method of advertising quality water closets, as well as an opportunity of tying up with "National Good Health Week." This window should prove unusually attractive because it lets the public into some of the hidden mysteries of a water closet bowl.

The window is simple to construct. All that is required are three boxes twenty inches higher, three boxes thirty-six inches high, and six closet bowls. (Two bowls are washdowns, two of the reverse trap pattern, and two with syphon jet.) About fifteen yards of (grey ramie) cloth is also needed to drape over the boxes to cover the floor. This is a soft material that can be purchased at any dry goods store, and gives a soft, pleasing finish to the window. It can also be used from time to time in other windows to take away the hard lines that are so difficult to get rid of in windows showing appliances and fixtures.

The cross sections of the closet bowls can be obtained from some pottery or they can be painted on a card or beaver

board. The latter is just as desirable, and any sign painter can make these cross sections for you, or if you are handy with the brush, you can make them yourself. The cardboard is first cut out in the shape of the bowl. Then it is painted white with white water color paint. The outline is painted on with lamp-black mixed with bronzing liquid. Light blue or light grey water color is used to represent the water. Also use the blue and grey water color paint to show the water line in the bowls on the tall boxes as indicated in the accompanying photograph.

Have a sign painter reproduce the signs shown in the photograph below and your window is complete. The streamer at the front of the window should run the full width. The "Good Health Week" emblem should be about two feet across, and should be reproduced exactly as shown in the window. The only other sign is a question, directed to the public, that will draw them into your store, or start them discussing your window with other people. It is just such results that give the show window the name of the silent salesman. Give your windows a little thought, time and attention, and

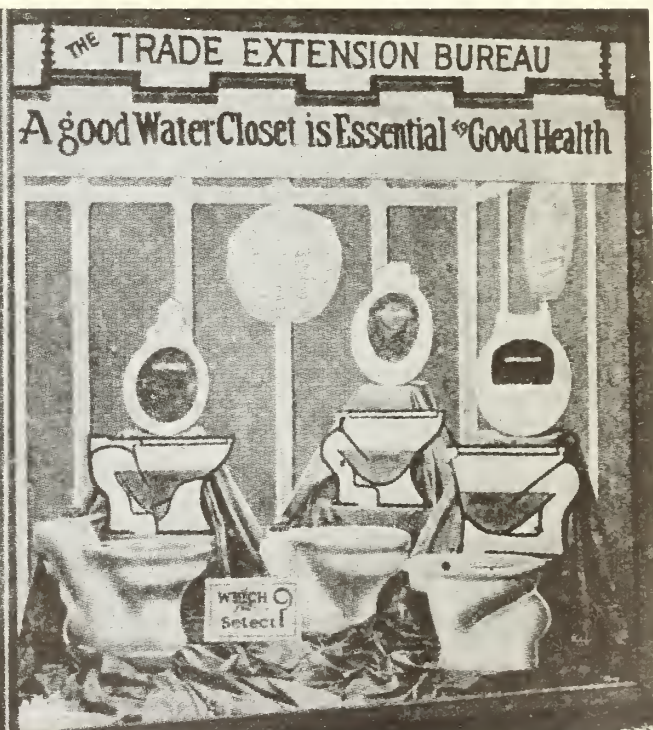
they will repay you over and over again in added prestige and profits.

The window display on the left most forcibly impresses upon the mind logical reasons why the modern, indoor, sanitary water closet should be substituted for the dangerous outhouse. The window is not difficult to build, yet, it presents a most effective selling picture to the passerby.

Beginning two feet back from the glass, erect a false floor the full width of your window about fifteen inches higher than the window floor. This false floor should be at least three feet deep. At the rear, and in the center of the window, on this false floor, set up a high grade water closet combination that you ordinarily carry in stock.

Use a piece of beaver board or similar material about twenty inches wide running the width of your window, to form a front for the false floor. The top of the beaver board should be cut irregular to represent the unevenness of the ground. On this paint a cross section of a well, as shown in the accompanying photograph; and paint a (grey) streak, to represent a fault or vein in the

(Continued on page 24)



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Set the Ball Rolling

THE inefficient methods and lack of stimulative measures employed by some plumbers are responsible for the state of their business which compels them to shout blue ruin. The same things are true of many other industries, notably agriculture, as set forth clearly in this issue. The plumber or heating engineer who is seeking new fields for trade and placing his business on a more efficient basis is being rewarded with results for his work. One of the chief things to keep in mind is that the most successful business men have not depended to a very large extent upon taking business from their competitors, but in increasing the volume of business in their field. Waiting for plumbing and heating contracts to be let, putting in bids and doing a good job will get a certain amount of business, but if the territory is studied and the business possibilities examined, many opportunities will be found for business which others have neglected. For instance, there are many homes with unsanitary plumbing, no water heaters, and without laundry trays. It is part of the merchandising plan which plumbers should adopt to take measures to make these sales.

Financial success comes to the plumber who gives real service in the community and it is the kind of success which is not begrudged him by townspeople. There are many ways in which business can be stimulated right now. With Fall approaching, heating equipment is to be looked over, additional lavatory equipment in homes can be provided, heat regulators can be installed, insulation equipment on heating plants to conserve coal, etc. Steps should be taken to start business coming on these lines right now.

Inefficients Make Most Noise

THE Canadian farmer to-day is the man to whom the sanitary engineers of the country must turn if they would penetrate deeper into a field which still has untold possibilities. There have been tales told of the sorry plight of the farmers of our country and the financial difficulties in which they have found themselves of late, but the truth of the matter is that the average Canadian farmer is in a much better position to-day than many persons think.

Only recently, Hon. W. R. Motherwell, Federal Minister of Agriculture, and Hon. J. S. Martin, Minister of Agriculture for Ontario, himself an experienced farmer, made the statement that the average farmer is making good and not going into debt as has been claimed. They admitted that there were some farmers going into debt but claimed that in most instances these were the misfits who are to be found in every form of occupation and those others who had bought their farms at peak prices and were now unable to stand up

under the heavy interest payments. The farmer who knew his business and was striving for quality production had a bright future.

Hon. W. R. Motherwell, Minister of Agriculture in the federal government, touched on the Western farmer and what might be expected following this season's record crop, saying that the money that would flow in from upwards of 400,000,000 bushels of wheat, even if the price were low, would be millions, millions that would pay debts and help to rehabilitate the whole western area. He went on to point out that when this was possible only thirty-five years after the West began to produce wheat, that the possibilities of the future had not been reached by half.

"Canadians should think these things over and take new courage," he concluded. "They have a wonderful future."

If he had been addressing a gathering of plumbers of the country, Mr. Motherwell could not have spoken to them more directly than he did in this message. One of the greatest potential purchasers of plumbing in Canada to-day is the farmer, and with these predictions of even greater rural prosperity to come, now is the time for the plumber to figure out how he can best secure his share of this business.

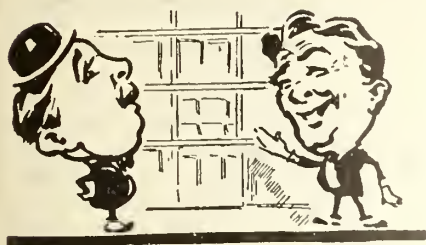
No Room for Reds

OFFICIALS of the American Defense Society discount the protestations of the Soviet Government of Russia and some American statesmen who have toured Russia recently that communists have abandoned their plan of spreading their propaganda throughout the world. According to recent information from a most reliable source, the Third Internationale has recently appropriated five million gold rubles—equivalent to \$2,500,000 in United States money—to be used in influencing newspapers outside of Russia to spread Bolshevistic propaganda. According to statements by Third Internationale officials, the communist government is maintaining approximately 250 newspapers outside of Russia for the dissemination of propaganda to promote disloyalty in capitalistic countries, and to urge the overthrow of governments by force and violence. Four of these newspapers are published in the United States.

"Secret Instructions to Commercial Representatives of Russia in Foreign Countries," a copy of which is now in official hands at Washington, notes that efforts must be made to buy up the press and win over newspapers which will place themselves in the service of communism. This interesting document directs Russian commercial representatives throughout the world to aid pacifist movements to spread communism in armies and navies, to inspire in soldiers and sailors hatred of their officers, to start strikes and aid strikers, to organize "workers' troops" who must fight at the bidding of the proletariat, "to supply workers with weapons, to encourage the use of terror, and constantly to continue the spreading of rumors of impending wars."

The red element has been and is now exceedingly active in Canada. There have been some open demonstrations of their activity, but the general public is not aware of the extent to which the insidious propaganda is being carried on in this country. The red element must be kept down. There is no room for reds in Canada. Government officials must take a firm stand and use troops when necessary to stem the tide of Bolshevism. It would also be well for some weak kneed government officials to remember that the Canadian people do not think it necessary to offer apologies to the red element. When troops are used, they are used to preserve law and order and the sooner the reds are made to understand this (without apologies) the better for all concerned.

Doesn't Fool the Public Any More



IN THIS era of modern enlightenment and sophistication it behooves the dealer who advertises goods at "less than cost" to recall the maxim of Abraham Lincoln, "You may fool some of the people all of the time, all of the people some of the time, but you can't fool all of the people all of the time."

The people of this age look upon the "less than cost" assertions as bunk, to delve into the everyday parlance. There is exhibited a tendency to remind the buying public, on the part of certain dealers, that these dealers are in business for a profit, and selling below cost is not in their repertoire or in the repertoire of any other dealer regardless of the claims of some dealers to the contrary.

For instance, in Moneton, N. B., there is a man who makes the following announcement, more or less as a business slogan:

**OF COURSE WE PROFIT HERE
BUT
WE DO NOT PROFITEER**

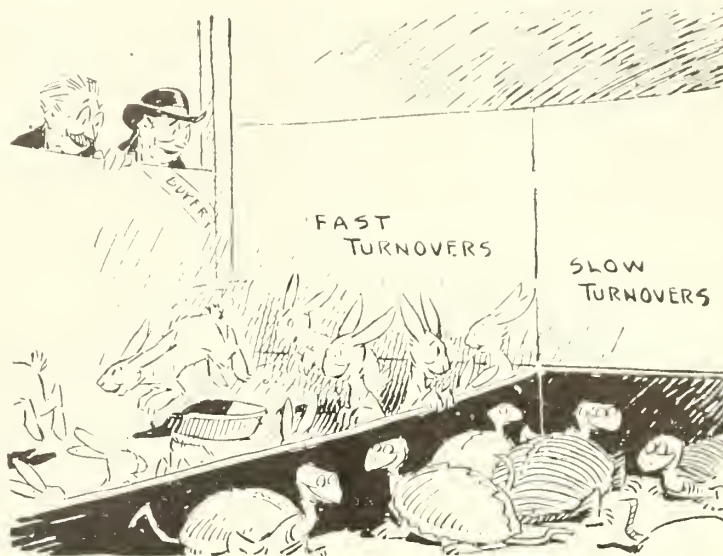
Another maritime concern makes the following announcement: "As our health is quite good as a general rule, barring the flu and a cold now and then, and a headache and a toothache and earache occasionally, we are not in this business for our health. We opened this store to make a profit on each article we sell over our counter. We have overhead expenses to pay all the while. Now, we could tell you we are selling below what the goods cost us. But that would not be the truth. Later on when we become millionaires we may start giving things free. But that stage is far distant. On each article we sell we secure a profit, not an unreasonable profit, but a fair one. We make it a point to get the best of stock, and the best of customers. If you are seeking something below cost go elsewhere. And you will be disappointed. For there ain't no such animal as below cost prices. This frank statement is made to clear the air."

The public is being educated to believe that extravagant claims are worthless. The flamboyant advertising of some classes of merchants in claiming sales at less than-half the cost, is creating a distrustful impression among the people, according to some dealers, and the entire trade is suffering.

First Steps Toward Better Buying

Minute Message No. 29

Written for Sanitary Engineer by FRANK STOCKDALE
Buying Series



IF FAST and slow moving goods could be as quickly separated and classified as some other things, the buyer's job could be made easier.

To know definitely what and how much to buy in the future should depend upon what and how much you bought in the past. A buyer cannot afford to guess.

Stock records showing purchases, sales, mark-up and stocks on hand enable the buyer to choose with greater certainty.

Records which show rate of turnover furnish facts that are vital to profit making.

At the best, there is always room for judgment.

Slow movers with attractive mark-ups seldom pay.

Fast movers with fair mark-ups are safe.

Buy sparingly of the former and freely of the latter.

THINK IT OVER--APPLY IT TO YOUR BUSINESS

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in the Plumbing Trade in Canada.*

News Notes From Coast to Coast

Doings in the Plumbing and Heating Industry

NEW FIRMS

The McMillan Plumbing and Heating and Tinsmithing Co. has commenced business at McMillan and Daly Streets, Winnipeg, Man.

Montreal, P. Q.—Announcement is made of the dissolution of the partnership existing under the name of Lavigueur and Menard, plumbers.

A tinsmithing and repair business is being opened on Archimedes Street, New Glasgow, N. S., by J. Roach MacDonald, who has been employed for a number of years in the tinsmithing department of Thompson & Sutherland.

BUSINESS CHANGE

Dunnville, Ont.—Wm. McGregor & Son of Hamilton, formerly well-known residents of this town, have purchased the plumbing business of the late George Calbeck.

The tinsmithing and plumbing business of W. A. Derry, Smith's Falls, Ont., has been taken over by Messrs. Spooner and Gloss, the former a local man and the latter from Carleton Place, where he has been for the past fifteen years head plumber with Taylor Bros.

NEW DRINKING FOUNTAINS

Oshawa, Ont.—Two modern type bubble fountains have been ordered and will be installed without delay, according to Town Engineer Smith. Definite locations for the fountains have not yet been selected.

PLUMBER'S ASSISTANT BURNED

Montreal, P. Q.—Rosaire Gaulin, seventeen-year-old plumber's assistant with the firm of L. Allard & Co., Montreal North, was severely burned about the face, arms and hands, in a blaze that started from the explosion of gasoline in a blow torch. He was working in an attic at pipes in the roof and wishing to heat a section of the pipe, was pouring gasoline into his blow-torch when the explosion occurred.

NEW MAIN FOR MONTREAL

Montreal, P. Q.—A sum of \$235,000 has been put at the disposal of the Water Board. Of this \$185,000 will be devoted to the installation of a 24-in. water conduit, one of 20-in. and another of 16-in. in diameter. This main is required on account of improvements to the high pressure system in the Papineau district and will allow the new 12,000,000 gallon pump at McTavish reservoir being utilized. The remainder of the money will be spent in the embellishing of the approach to the new pumping station at Atwater Ave., making roads and laying sidewalks to the station.

NEW PUMPING STATION TESTED

Georgetown, Ont.—The new pumping station, an auxiliary system for fire and emergency purposes, which draws its water supply from springs a mile from the town, has been tried out by the firemen and has proven satisfactory in every way.

KAUSTINE CO. TO EXPAND

Dundas, Ont.—Plans are under way for the enlarging of the plant of the Kaustine Co., manufacturers of sanitary chemical closets and septic tanks. President J. F. Crowley states that a new factory building, 60 by 120, is under consideration and that there would also be a sheet iron storage shed and an office building.

OBITUARY

A survivor of one of the oldest families of Halifax, N. S., passed away recently in the person of John B. Naylor, aged 81 years. The late Mr. Naylor was one of the most prominent of the older generation of citizens, having been in the plumbing business for a number of years under the firm name of J. B. Naylor & Sons. He retired from this in 1900 and entered the Customs Service, in which he served until about seven years ago when he retired.

PLUMBING BYLAW OBSOLETE

Waterloo, Ont.—The plumbing bylaw in force in this municipality is obsolete and so constituted that it would never secure the sanction of the provincial authorities, according to representations made to the Town Council by Town Engineer Moogk, who advocated that the regulations be brought on a par with those in force in the nearby city of Kitchener. Kitchener has the provincial regulations. The Council appointed a committee to consider the present bylaw and report a new bylaw if thought necessary.

MUST USE SANITARY SYSTEM

Oshawa, Ont.—A. Robinson was fined \$1.00 and costs for not complying with the bylaws regarding sanitary conveniences and N. Kohen was let off on suspended sentence in connection with the same bylaw when they were brought into court recently under complaint by Councillor Brown, chairman of the Sanitary Committee, who is making a drive to have the city's sanitary system made use of by all householders. Future fines will be much heavier.

NEW SITE FOR COMFORT STATION

Vancouver, B. C.—The city council is still at a loss for a site for the new comfort station, objections having been raised by citizens to every site suggested to date. A special committee is now taking up the question at further length.

MAKE NEW WATER CONNECTION

St. John, N. B.—Connections with the new 36-inch water main have been made at Little River. With this connection made, the city now possesses two sources of supply, Loch Lomond and Little River, and in case anything goes wrong, there can be no serious interruption to the city's water supply.

ENGLISH COMPANY RE-ORGANIZED

Notification has been received of the purchase in liquidation of United Brassfounders and Engineers, Limited, Halifax and Ormskirk, England, by R. E. Hattersley. The business, which consists of the manufacture of valves, pipe fittings and allied lines, will be continued under the name of Hattersley Limited.

POOR PLUMBING TO BRING FINES

North Vancouver, B. C.—Merchants and householders who are wasting water through defective plumbing will be prosecuted by the city, it has been decided by the city council. The higher portions of Lynn Valley are suffering from a water shortage, probably due to waste of water in the city. A check is being made to detect all waste.

BROKEN PIPE CAUSES TYPHOID

Toronto, Ont.—The Department of Public Health has discovered that the outbreak of typhoid among prisoners at the Jail Farm was due to a broken water pipe which allowed the water supply to become contaminated. The break has since been repaired, and the water is being chlorinated so that there is no danger of further cases developing.

FEWER OUTDOOR CLOSETS

Peterborough, Ont.—The month of August saw further progress towards a sanitary city by the removal of ten outdoor closets and the installation of modern plumbing in their stead. This brings the total improvements of this class for the year to date to 81. Permits were also issued by Plumbing Inspector A. G. Methers, covering the following fixtures: 27 water closets, 8 baths, 10 basins, 21 sinks, 1 stop sink, 2 laundry tubs and 1 dishwasher.

SANITARY INSPECTOR APPOINTED

Bolton, Ont.—William Shaw has been appointed sanitary inspector, village constable and fire warden of the village. He will receive a salary of \$100 per year.

NEW SANITARY BY-LAW

Calgary, Alta.—Commissioner A. G. Graves and Superintendent W. H. Gardiner have started work on the drafting of a new garbage and sanitary by-law for this city.

TO COMMENCE BIG SEWER

Windsor, Ont.—Everything is in readiness to go ahead with the big Riverside trunk sewer extending more than a mile along Ottawa Street east from the Ford City boundary limits.

NEW PRESIDENT APPOINTED

Toronto, Ont.—Local representatives have been informed of the appointment of W. W. Crawford as president of the Edward Valve & Manufacturing Co., East Chicago, Ind., the vacancy caused by the resignation of Olaf E. Oleson.

WATERWORKS SYSTEM BEING INSTALLED

Kirkland Lake, Ont.—Construction of the town's waterworks system is proceeding rapidly, about forty men being employed on the job. Water and sewer mains are being laid simultaneously, but the latter will not be used until a proper place has been secured for sewage disposal.

DEFEAT SANITARY SCHEME

Mount Dennis, Ont.—By a vote of 13 to 9, the representatives of all the different ratepayers' associations in Mount Dennis turned down the proposal to expend the sum of \$15,000 in the improvement of the sanitary arrangements at Dennis Avenue School, together with the laying of sidewalks around the school yards.

GAS MAINS TO BE LAID

Toronto, Ont.—Gas mains will be laid on Blackthorn, Silverthorn, Rosethorn and Chambers Avenues as far north as Kersdale Ave. before winter, according to information received from the Consumers' Gas Co., by Thomas Donnelly, of the Ratepayers' Association. Services will be installed in over 90 per cent. of the houses in the area.

SECURED GOOD CONTRACTS

Oshawa, Ont.—Miller and Libbey, sanitary engineers, have secured a number of large contracts recently, among them being the heating and plumbing installation in the Service Building of General Motors, plumbing, heating and ventilation of the Assembly Building of General Motors, and plumbing installation for the new Centre Street school.

INSPECTED CONCRETE SEWER PIPE

Hamilton, Ont.—City Engineer McFaul has arrived home from a trip to Milwaukee where he inspected concrete sewer pipes in use there. He expressed himself as much impressed with the results there where concrete pipe has been in use for the past thirty years.

LARGE LEAKAGE OF WATER

Fredericton, N. B.—F. A. Barbour, consulting engineer, who is investigating Fredericton's water system, has expressed the opinion that the loss by leakage may amount to as high as fifty per cent. His report to the City Council has not been submitted as yet.

NEW DISPOSAL PLANT PROPOSED

London, Ont.—Plans for a new sewage disposal plant, to be constructed on the river bank near the present one at the Coves, will be prepared next year by City Engineer Near. The engineer points out that a new plant is absolutely necessary. The ratepayers will likely vote upon it in December, 1924.

CONTRACT FOR SCHOOL HEATING

Midale, Sask.—A vote of the ratepayers of the Midale school district, taken some time ago, authorized the procuring of ten-year debentures to furnish a modern steam heating plant to be installed in the four-room school. George Lythgoe, of Weyburn, was awarded the contract for the work, finishing the job in time for the opening of school.

DISPLAYING SANITARY EQUIPMENT

(Continued from page 25)

ground or rock, leading from underneath the outhouse and stable down to the well. Paint the remainder of the beaver board with lines and colors to indicate a cross section of the earth beneath the buildings, as shown in the picture.

At the higher end of this front, place a model of an outhouse. At the other side of the window place a model of a barn; and in the centre, immediately over the well, place a model of a pump, with a doll posed as operating the pump. At the rear of your window, raised somewhat above the level of the false floor, pose a model of a house, as shown by the picture. All of the buildings as well as the pump can be made of card or beaver board, painted with water colors to suit. Around and between the various objects on the false floor in your window, cover with green tissue paper, and over this spread either real or artificial grass or sod made of dyed sawdust or excelsior. Use weed tops or small branches of shrubs to represent trees and shrubbery. Have a sign painter to reproduce the signs shown in the accompanying photograph in colors to suit.

PLUMBERS MIX PLEASURE WITH INSTRUCTION

(Continued from page 19)

Proceeding with a brief bit of business Mr. Stewart announced that a committee appointed to consider the question of further meetings during the next winter season had met and recommended that ten dinners be held and that there be a membership fee of approximately \$2.50 per member to defray expenses apart from the actual cost of dinners. A standing vote of Hamilton members was unanimously in favor of continuing the meetings. A beautiful souvenir in the form of a valuable pipe and package of tobacco was given each one in attendance by Page-Hersey Tubes, Limited.

The dinner being adjourned, members again took to the cars and proceeded to the Page-Hersey plant. Under the guidance of Superintendent West, Mr. Rooke and other capable officials, the plumbers in parties of fifteen, were taken through the huge plant and each process explained fully. A great deal of interest was taken in the processes involved in the making of butt weld and lap weld pipe, fittings, etc., in both galvanized and black iron, in the wide range of sizes. The galvanizing process, involving the use of sal ammoniac and other acids, was of much interest, though some of the members were afraid of losing their eyes or throats before getting out.

The stages of manufacture were explained thoroughly, commencing with the skelp, which is the metal in long strips of varying widths as it comes from the producers in the United States. Skelp is made only by the Bessemer process, it being impossible to make it successfully on the open hearth furnaces, and it is therefore not made in Canada. After being heated these strips are rolled and butted or lapped into the shape of pipe and commenced on the other stages of finishing, winding up with a high water test to establish leaks, cutting, threading, tagging and grading.

The company operates its own machine shop for cutting of dies and making tools. The plant is now working to capacity, this representing about 300 tons of pipe per day. Considerable export business is being done, some heavy steam pipe being made for English trade, and other pipe being shipped direct to Australia.

When the inspection was completed the plumbers gave three lusty cheers for the officials of the Page-Hersey Co., and all agreed that their visit had been highly educational and valuable to them. Plans had been made for a ball game, but it was rather late when the inspection was completed, and after much hand shaking the motor cars were again started and the long trek homeward commenced.

Many Sanitary and Heating Engineers Visit Booths at the C.N.E.

Many Interesting and Complete Exhibitions of Plumbing and Heating Equipment Shown at Canadian National Exhibition—Hundreds of the Craft From all Parts of the Province Take Interest in Demonstrations

NEARLY a million and a half people passed through the gates of the Canadian National Exhibition which closed in Toronto Saturday, Sept. 8, after the most successful two weeks in the forty-five years of its existence. Each year has seen this, the greatest annual fair in the world, growing in every respect. Attendance has gone up with tremendous leaps, while each year has seen pace-keeping increases in the attractions and exhibits to be found on the grounds.

Among the exhibits shown are to be found practically every line of natural and manufactured product, not alone of Canada, but of many other lands as well. This being the case it is but natural that the members of the plumbing and heating trade have not been forgotten and that the many out-of-town members of the trade who visited the Exhibition found much to interest them in the booths in the Process and Machinery Buildings.

These visits have proven of inestimable value to plumbers in a number of ways. The latest improved devices and equipment have been placed before them, in charge of capable men able to explain the features and advantages.

The visitors in many cases met the heads of the companies with whom they

have been dealing, and in this way, have been able to build up a stronger feeling of friendship and personal contact. Talking with these men the visitors have in numerous instances gained much valuable information that will mean a great deal to them in the future conduct of their businesses.

Realizing that they would have a splendid opportunity to thus come into closer contact with their customers in the trade, the manufacturers of sanitary and heating equipment spared nothing in the way of expense in making their exhibits as attractive and as complete as was possible in the limited booth space at their disposal. Some of these exhibits presented appearances that were really outstanding in appearance.

Gold-Plated Washroom Fittings

One exhibit that attracted many visitors was divided into several sections, one end being made up as a bathroom with walls of imitation tile and showing a complete set of modern style bathroom fixtures in white vitreous, one of the features of the display being the built-in shower room and ten-head shower in one corner of the room. This was a portion of the exhibit of Crane, Limited, Montreal, P. Q., two smaller

divisions of whose booth showed rooms, one containing a stock pattern wash-basin in Carrara marble and gold-plated fittings and trimmings, and the other showing a complete moderately-priced bathroom. At the other end of the booth a wide range of valves and other brass goods were shown. At the end of the booth a gas water heater, cut down to show the method of operation, was shown, fitted up to a basin with running hot water on tap all day long. The exhibit was in charge of G. A. Vowell and A. E. Laidlaw.

Large Furnace Exhibit

A long booth in the stove building carried a large exhibit of warm air furnaces, coal stoves and gas stoves, manufactured by the Gurney Foundry Co., Ltd., Toronto, Ont. One end of the booth was devoted solely to a showing of furnaces, the other end formed an office for the handling of enquiries, while the space between was occupied with the display of coal and gas stoves. On a raised platform along the rear of this section the larger sized ranges formed a background for the smaller heaters and ranges shown in the fore part of the booth, the whole presenting a very pleasing appearance.

A wide variety of goods was to be found on exhibit in the booth of the



One of the prettiest sights at the Exhibition is the large fountain, and is but one of the many features that characterize the beautiful grounds of Exhibition Park.



A splendid view of the grandstand at the Canadian National Exhibition, showing the immense crowd that can be seated there and in front of which there is always an interesting performance.

Gendron Mfg. Co., Ltd., Toronto, Ont., where a neat railing effect around the exhibit was obtained by the use of a row of rubber-tired baby carriage wheels, then a row of small disc wheels from toy autos, and topping off this with a handrail formed of white enamel towel racks. In the booth proper were to be seen a wide range of toys and wicker furniture. The back and side walls of the booth were given over to neatly-arranged panel displays of bathroom fittings in nickel and enamel finish.

For Users of Alberta Coal

New models of pipe and pipeless furnaces, with a heightened fire pot designed for burning Alberta coal, were to be seen in the exhibit of the Galt Stove and Furnace Co. Ltd., Galt, Ont. In their stove exhibit an innovation was seen in the planished tops on practically all cookstoves, while in the gas stove section, it was noted that all these stoves are now fitted with the automatic lighter.

Rotating Panels Attract Attention

A display of lead pipe, 12 in. in diameter, one on the largest sizes made in Canada, was to be seen in the booth of the Canada Metal Co. Ltd., Toronto, Ont., who also showed their process of making ordinary lead pipe. Another innovation in the country featured in the same exhibit, was the stringing of ten blocks of lead on a wire for shipping, an idea that is proving popular. Laundry tubs and closet tanks manufactured by the firm were among the products shown. At one end of the booth a rotating set of panels carried a varied display of solders, babbitt metals and other small lines. Both Mr. Harris, president of the company, and his son, were in almost constant attendance in the booth during the course of the Exhibition, along with a large staff.

Large Heating Goods Display

Eight lines of furnaces and about as many of stoves were to be seen in the long, well-arranged booth of Clare Bros. and Co., Preston, Ont., where a staff composed of J. D. Aitchison, L. Lohead, W. Baker and B. Davey were on hand to answer enquiries.

Showed Cellar Drainer

A silent salesman in the one corner of the booth of the Jas. Morrison Brass Mfg. Co., Ltd., Toronto, Ont., contained a display of nickel finish taps and drinking fountain tops. A long table carried the valve display in bronze and iron body up to 12 inches in size, also featuring the reducing valves and heavy pressure valves. On the wall steam gauges and recording gauges were shown while at one end of the booth two gas water heaters in operation with running hot water and an automatic cellar drainer were shown. The exhibit was in charge of A. Betton, assisted by R. Graham.

Large Assortment of Valves

Water pressure systems were featured in the large, attractive exhibit of the Empire Brass Co. Ltd., London, Ont., in Machinery Hall, being shown fitted up to basins and complete bathroom sets. Globe, gate and curb valves were also shown in wide assortment in table displays. The exhibit was in charge of B. Morris, of the sales department.

Pumps Shown in Operation

Two pumps, to which were attached miniature tanks, drew much attention to a table in the front of the booth of the National Equipment Co., Toronto. The two pumps on the table were shown in operation. The rear of the booth was taken up by a number of pumps and tanks not in operation. The exhibit was in charge of M. J. Quinn, general manager, assisted by Ross Belyea.

Occupied Two Booths

The large exhibit of the McClary Mfg. Co. Ltd., London, Ont., showed gas ranges in plain and enamel finished oil stoves. At one corner of the exhibit a large range of enamel kitchen wares in grey, blue and white finishes were displayed on a tiered wire rack. A second booth, alongside this one, showed three furnaces, all set up. One of these was without casing so that the parts could be seen more easily.

Attractively Arranged Booth

An attractively arranged corner booth in the Industrial Building showed table displays of the line of compression goods manufactured by the Galt Brass Co., Galt, Ont. The remainder of the booth was given over to the showing of closet sets and washstands in white vitreous finish, the decorative idea of the booth working in well with the vitreous goods.

Photo Demonstrated Feature

Inventions Ltd., Montreal, P. Q., featured Rawlplugs, a simple device for enabling screws to be given a better purchase in such materials as glass, tile, wood, plaster, cement, metal, slate or stone. A photo showing ten men with a combined weight of 1,540 pounds hanging from a 9-32 inch screw and No. 14 Rawlplug in cement proved of much interest to passersby. The booth was in charge of H. Driver, managing director of the firm, assisted by D. M. Fraser, manager of the Dominion Engineering Agency, Ontario representatives for Inventions Ltd.

Many Visited Tent

A large tent carried the exhibit of T. G. Griffith and Co., Toronto, Ont., which was in charge of Mr. Griffith personally. Chemical toilets, septic tanks and water systems were shown, five pumps being shown in operation.

Twenty Years — Ago —

Following items are reproduced from MacLean Publishing Co., trade newspaper files of September, 1903:

"F. C. Hunt, London, Ont., has contracts for the Military School, C. McHugh, George Lewis, Bank at Lucan, Methodist church, Brantford, W. Wilson."

"Pease Furnace Co. of Toronto have found it necessary to increase both their plant and capitalization owing to the growth of business. The Sheridan Mfg. Co. of New Toronto has been merged with the Pease Co. and J. T. Sheridan becomes president of the reorganized firm."

"What promised to be an exciting game of baseball took place at the Woodbine, Toronto, last Saturday between the manufacturers and supply men and Toronto Master Plumbers' Association. The manufacturers won by the score of 26 to 18. Following were the players: Manufacturers; P. McMichael, A. Fleming, C. World, F. N. Cullen, W. Cluff, W. L. Helliwell, H. Carrick, Pearsall, Meen and Ormiston. Master Plumbers; W. Mansell, George Clapperton, George Cooper, R. Harrison, R. T. Robinson, C. Robertson, C. E. Pickard, L. Le Grow and W. G. D. Adams. At the conclusion P. McMichael, star pitcher of the manufacturers, was presented with a handsome bouquet and medal."

"Upwards of 300 persons representing the Master Plumbers and their wives and families of both Toronto and Hamilton, gathered at Oakville on Wednesday. Representing the Toronto supply houses were; A. A. McMichael of Jas. Robertson Co., Ltd.; H. W. Anthes, Toronto Foundry Co.; P. McMichael, Dominion Radiator Co.; F. Sommerville, Ontario Lead & Wire Co.; F. N. Cullen of Cullen & Jackson; A. Fleming of Stevens Mfg. Co.; W. Terry of F. W. Webb Co.; A. McArthur of Standard Ideal Sanitary Co.; C. World of Jas. Morrison Brass Mfg. Co. From Hamilton were Ald. Hugh S. Wallace of J. Wallace & Son; S. Mellow, W. J. Smith and A. Rogers. The plumbers beat the supplymen at baseball, 34 to 14."

Catalogs and Booklets

Those interested in any of the catalogs described below can procure a copy of the same by writing direct to these firms. Mention that you noticed this in *Sanitary Engineer*.

NEW ALUMINUM HANDBOOK

The British Aluminum Co., Ltd., of London, Eng., and 592 King St. West, Toronto, have issued a new volume called *The Aluminum Handbook*. This book contains sixty-four pages of useful information, which is printed on fine quality of paper and is attractively bound in green imitation leather.

The reading matter contained in this book is composed of many very useful facts and figures along every line of commercial aluminum, and should be of great assistance to the worker in aluminum.

The volume is divided into seven parts which are under the following headings: General, Tubes, Wire-Cable, Bars-Rods, Mouldings, Sheets, Ingots-Alloys.

It is mentioned in the introduction of this book that this company have printed treatises (in addition to this book) on "Casting Aluminum," "Sheet Metal Work," "Automobile Body Work," "Mouldings," and many others and that any of these will be mailed on request.



STEALTH

Father—How is it that I discover you kissing my daughter?

Young Man—I don't know, sir, unless it's because you wear rubber heels.—S.E.

DREW THE LINE

"See here, waiter, here's a piece of wood in my sausage," said a guest in a chop-house.

"Yes, sir, but I'm sure — er —"

"Sure, nothing! I don't mind eating the dog, but I'm hanged if I'm going to eat the kennel, too," interrupted the guest.—S.E.

New Goods of Interest to Plumbers

SOLDERING AND BRANDING TORCH

A new gasoline torch combined with a branding tool or soldering copper is made by the Geo. W. Diener Mfg. Co., Chicago, manufacturers of the Torrid line of blow torches.

The Torrid burner construction is new. A superheating chamber extends three-fourths the length of the upper side of the burner. The fuel is first vaporized by a generator similar to the type used in all blow torches. The vapor is then fed into the superheating chamber through a pre-heating tube inside the superheating chamber and is trans-



formed into dry gas. By this means the usual carbonization, which clogs the ordinary run of burners, is practically nil. The air-mixing principle is similar to that successfully used in "Torrid" torches. The superheated gas is discharged into the burner tube through the correct size opening for ordinary market gasoline, and is regulated by a needle valve. The needle is made in one piece of solid steel rod and seated squarely on a broad base of the solid casting. No separate inset, commonly known as a "needle block," is used in the manufacture of these burners, and there are said to be no parts to work loose in the stress of temperature variations to which a burner is subjected. The orifice is self-cleaning and guarded by a deep shoulder that overcomes the common difficulty and danger of forcing the needle when hot and enlarging the orifice.

PASSING THE BUCK

"Sir," said the young man, with enthusiasm, as he seized the lecturer's hand and shook it warmly, "I certainly enjoyed your lecture last night very much indeed."

"I am glad to hear that," said the lecturer, "but I didn't see you there."

"No," admitted the youth, "I wasn't there."

"But," said the puzzled speaker, "how could you enjoy my lecture if you were not present?"

"Oh, I bought tickets for my girl's parents and they both went."—S.E.

A SCOT'S NATURAL DEATH

The difference between an Englishman and a Scotchman has been described as follows: An Englishman loves telling a story about some other fellow, and a Scotsman loves telling a story about himself. It is not surprising, therefore, to find Sir Auckland Geddes relating an incident in which one of his own countrymen figures as the somewhat doubtful hero.

A Scotsman in the Strand saw a passer-by drop half-a-crown. He dived into the traffic after it, was run over, and killed.

The coroner returned a verdict of "Death from natural causes."—S. E.

The flame has a remarkable range of temperature adjustment. It burns steadily at any variation from a minimum of 1,400 degrees to a maximum of 2,000 degrees Fahr., which permits the various sizes of brands or soldering coppers to be held at the precise heat necessary for the work in hand.

TILE AND PORCELAIN CLEANER

The Hercules Chemical Co., 440 Washington St., New York, have placed on the market a new product, under the name of Hercules Tile and Porcelain Cleaner. This product is a sister product to the Hercules drain pipe solvent, which is already known on the market.

The manufacturers claim that this new article is an A1 high-grade product at a popular price, and that the established demand on the part of the consumer for a good porcelain cleaner



will mean good business for the merchant plumber, in profitable resales.

The label of this new product (which cannot be reproduced faithfully in the cut) makes a striking display.

The manufacturers claim that their policy of selling their products only to the plumbing trade eliminates any unfair competition from other sources, and that they will furnish further information on this new product upon application.

Market Conditions and Tendencies

Price Trend on Sanitary and Heating Supplies

Markets at a Glance

AN INCREASE in trading has taken place during the past two weeks, and plumbers, steamfitters, and sanitary engineers are reported to have large amounts of work lined up for the Fall months, this work being mostly in the nature of repairs to, or installations of new heating plants, in both residential and commercial buildings.

The decline in price on brass valves and bibbs is announced in Montreal and Winnipeg, as well as a reduction in prices of scrap materials which also occurred in Montreal. Towel bars and other lines of nickel plated bathroom fittings have advanced quite noticeably and declines of a slight nature in English galvanized sheets and coke tinplates have taken place in Toronto.

Montreal Markets

MONTREAL, Sept. 13.—Local dealers report an improvement in business during the past two weeks, and a general feeling exists that the fall trade is going to be good. Prices which have been in effect for some little time back have been maintained almost without exception during the past two weeks. Declines have occurred in some lines of compression goods.

The scrap market is quiet at the recent reductions, but considerable improvement is looked for in the very near future.

DECLINES NOTED IN SOME LINES OF COMPRESSION GOODS

Montreal.

A decline is noted in some lines of compression goods. Sales in this line are reported as being quite good at the present time. Quotations in effect locally are as follows:

VALVES AND BIBBS—

Compression work, standard.....	48%
Fuller work, standard	30%
Quick opening, compression bibbs.....	45%
Bath cocks, quick opening.....	38%
Bath cocks, compression.....	45%
Basin cocks, quick opening.....	50%
Flatway stop and waste cocks, std.....	56%
Roundway stop and waste cocks, std.....	42%
Brass steam cocks, standard, 1/4 in.....	25%
Radiator valves, standard	55/25%
Do., removable discs	55/25%
Globe, angle and check valves, std.....	25%
Gate or straightway	25%
Emco globe valves	33%
Emco check valves	33%
Jenkins globe, angle, check and swing check	plus 15%
Jenkins gate or straightway	plus 11%
Jenkins iron body, globe and angle.....	plus 10%
Jenkins iron body, gate.....	12%
N. P. "O" and "S" traps.....	34%

CORRUGATED SHEETS SELLING IN GOOD QUANTITIES

Montreal.

Prices on corrugated sheets remain unchanged. Dealers locally report a fair amount of activity in this line. Prices in effect locally are as follows:

CORRUGATED SHEETS—	Per 100 sq. ft.
No. 28 gauge	7 00
No. 26 gauge	7 50
No. 24 gauge	10 00
No. 22 gauge	12 50
No. 20 gauge	14 00
No. 18 gauge	19 00
Less 10 per cent.	
Lighter than 24 gauge and wider than 27 ins.	
75 cents per square extra.	

GOOD SALES IN EAVESTROUGH AND CONDUCTOR PIPE

Montreal.

Sales of eavestrough and conductor pipe are reported as improving. Prices remain steady and are quoted locally as follows:

EAVESTROUGH—

O. G. round and half round, per 100 ft. 8 in., \$16.90; 10 in., \$18.70; 12 in., \$22.20; 15 in., \$35.50; 18 in., \$45.00.

O. G. Square bead, per 100 ft.; 8 in., \$15.90; 10 in., \$17.70; 12 in., \$21.20; 15 in., \$34.50; 18 in., \$44.00.

Discount 65 and 5 per cent.

CONDUCTOR PIPE—Round, Plain and Corrugated, per 100 ft.; 2 in., \$18.40; 3 in., \$22.30; 4 in., \$29.60; 6 in., \$48.00; 8 in., \$58.80.

Discount 65 and 5 per cent.

CONDUCTOR ELBOWS—

Plain or corrugated, price per doz. 2 in., \$5.25; 3 in., \$6.00; 4 in., \$10.50; 5 in., \$24.00; 6 in., \$29.00.

Discount 50 and 10 per cent.

WEEK'S MARKET QUIET IN SCRAP MATERIALS

Montreal.

A very quiet market is reported by dealers in scrap materials. Few sales are being made, but dealers are looking for considerable improvement in the near future.

SCRAP—

Automobile Tires	0 50
Rubber Shoes.....	0 02
Yellow brass	0 06 1/2
Red brass	0 06 3/4
Light brass	0 04 1/2
Scrap zinc	0 05
Lead, heavy	0 05
Lead, tea	0 03
Light copper	0 09 1/2
Heavy copper	0 11 3/4
Wrought iron, R. Rd. No. 1 per gr. ton	14 00
Malleable scrap (ton)	16 00
Pipe scrap (ton).....	8 50
Heavy melting steel	9 50
No. 2 busheling	5 00
Boiler plate	12 00
No. 1 machinery cast	20 00

PIPE FITTINGS SELLING IN GOOD VOLUME

Montreal.

A good volume of business is being done in pipe fittings. Prices show no change and are in effect locally as follows:

PIPE FITTINGS—

Cast iron fittings	10%
Plugs, cast iron.....	10%
Do., solid	10%
Do., countersunk	10+
Bushings, cast	15%
Do., malleable	15+
Unions	30%
Flanged unions	10%
Flanged fittings	27 1/2%
Dart unions, black, 1/8 to 2 in.....	27 1/2%
Do., 1/8 in., 2 1/2 in., and larger.....	10 and 10%.
Do., galv. add to black.....	27 1/2%
Nipples, 1/8 to 4", close and short.....	45%
Do., long	50%
Do., 4 1/2 to 8", close and short.....	35%
Do., long	40%
Couplings, 4" and under	35%
Do., 4 1/2" and larger	5%

Malleable Fittings—

Piece list effective June 1st, 1922. Discount 63 per cent.

STEADY TRADING IN RADIATORS AND BOILERS

Montreal.

Trading in radiators and boilers is reported by dealers to be quite active at the present time. Quotations remain unchanged from the last listing and are in effect locally as follows:

RADIATORS AND BOILERS—

Radiator list prices are for 1, 2, 3, 4 and 5 column radiators, per sq. ft.

45 in. to 38 in., \$1; 32 in., \$1.10; 30 in., \$1.15; 26 in., \$1.20; 23 in., \$1.26; 22 in., \$1.30; 20 in., \$1.36; 18 in., \$1.40; 16 in., \$1.50; 14 in., \$1.55; 13 in., \$1.60. Discount 44 per cent for hot water, and 45 per cent. for steam.

Wall radiators—5 ft., \$1.15; 6 ft., \$1.10; 7 ft., \$1.05; 9 ft., \$1.05; 12 ft., \$1.05; Discount 41 per cent.

Boilers—Round and water boilers, sizes from 0 to 10, 52 per cent. off list. Square or sectional hot water or steam boilers, 15 in., 3 per cent. with Ontario Government trimmings, list. Square or sectional water boilers, 19 in. to 36 in., 2 per cent. Square or sectional steam boilers, 19 in. to 26 in., 5 per cent. Ontario Government trimmings, list plus 7 per cent. Square or sectional water or steam boilers, 48 in., list plus 10 per cent. With Ontario Government trimmings, list plus 18 per cent.

Round steam boilers, standard trimmings, 16 per cent. Ontario Government trimmings, 13 per cent.

F.o.b. Montreal, Toronto, Guelph.

PRICES ARE FIRM ON SHEETS AND PLATES

Montreal.

Prices are firm on sheets and plates, and fail to show any tendency to deviate from the following levels:

BLACK SHEETS—

10 gauge, base	4 75	5 00
12 gauge	4 85	6 00
14 gauge	4 96	6 10
16 gauge	6 05	6 16
18—20 gauge	6 20	5 26
22—24 gauge	5 20	6 35
26 gauge	6 25	6 40
28 gauge	6 36	6 60

GALVANIZED SHEETS—

	Queen's Head	Fleur de Lis
18-20 gauge	6 90	7 40
22 gauge	7 15	7 66
24 gauge	7 25	7 76
26 gauge	7 50	8 00
28 gauge	7 75	8 25

Other Brands—

10½ oz.	7 76	8 90
28 U. S. gauge	7 00	7 75
28 U. S. gauge	7 60	7 75
24-22 gauge	6 85	7 10
20-18 gauge	6 65	6 76
16 gauge	6 50	6 60

Above prices are for ½ ton lots in English iron and 1000 lb. lots in American iron with an extra charge of 25c for less quantities. Extra for sheets 3 ft. wide, 28 gauge and 10½ oz. 25c per 100 lbs.

Further extra for sheets 4 ft. wide according to gauge.

TIN PLATE—

20 x 28 x 100 lbs. basis	15 60
20 x 28 IC, 112s	16 00
20 x 28 IX, 112s	18 00
20 x 28 IXX, 66s	11 00
20 x 28 IXXX, 56s	12 00

TERNE PLATE—

20 x 28 IC, 112s, 200 lbs.	14 60
29 x 28 IC, 112s, 214 lbs.	16 00

CANADA PLATE—

Half bright, 60s	5 60
Half bright, 52s	6 50
Blued 62s	5 90
Blued 60s	6 00

WROUGHT PIPE PRICES REMAIN STEADY

Montreal.

Prices on lapweld and butt weld pipe remain steady. Sales in this line are reported as being quite good and prices are still being based on list No. 59, issued some time ago.

WROUGHT PIPE

Price List No. 59. April 24th, 1923.

Standard Butt weld Pipe S/C per 100 feet.

Size	Steel Blk.	Gen. Galv.	Wrot. Blk.	Iron Galv.
1½ in.	6.00	8.00	.....	.....
1 in.	4.32	6.30	7.56	9.60
¾ in.	4.32	6.30	7.56	9.60
½ in.	5.53	6.97	7.82	9.36
¾ in.	6.79	8.40	9.55	11.27
1 in.	9.69	12.07	13.77	16.32
1¼ in.	13.11	16.33	18.63	22.08
1½ in.	15.68	19.53	22.28	26.40
2 in.	21.09	26.27	29.97	35.52
2½ in.	33.35	41.54	.....	.....
3 in.	43.61	54.32	.....	.....
3½ in.	56.12	69.00	.....	.....
4 in.	66.49	81.75	.....	.....

Standard Lapweld Pipe S/C per 100 ft.

Size	Steel Blk.	Gen. Galv.	Wrot. Blk.	Iron Galv.
2 in.	24.42	29.60	33.30	38.85
2½ in.	36.27	44.46	50.31	59.09
3 in.	47.43	68.14	65.79	77.27
3½ in.	57.04	69.92	79.12	92.92
4 in.	67.58	82.84	93.74	110.09
4½ in.	78.74	96.52	1.14	1.33
5 in.	91.76	112.48	1.33	1.55
6 in.	1.19	1.46	1.73	2.02
7 in.	1.55	1.90	2.21	2.62
8 in.	1.63	2.00	2.33	2.75
9 in.	1.87	2.30	2.68	3.17
10 in.	2.23	2.83	.....	.....
11 in.	2.14	2.62	3.04	3.58
12 in.	2.76	3.38	3.91	4.01

CLOSET GOODS ARE FAIRLY ACTIVE

Montreal.

Dealers report that trading in closet goods is fairly active. Prices remain

steady and quotations in effect locally are as follows:

CLOSET COMBINATIONS—

Low Down Outfits, each	
Closet, standard outfit, oak	24 00
Do., post hinge seat	24 50
Do., oak vitro or Pussyfoot	24 00
Do., post hinge seat	24 50
Do., mahogany vitro or Pussyfoot, post hinge seat and cover	27 00
Do., vitreous china, oak post hinge seat and cover	29 00
Do., vitreous china, mahogany post hinge seat and cover	29 50
Do., white vitro or Pussyfoot, mahogany post hinge seat and cover	30 00
Do., enamelled iron tank, oak post hinge seat and cover	28 75
Do., enamelled iron tank, mahogany post hinge seat and cover	29 00
Add for ¾" valve on supply pipe	1 25
Add for spud	0 60
Add for reverse trap bowl	1 50
Add for syphon jet bowl	7 00
Deduct for supply pipe	0 80
Deduct for floor hinge	0 60
Richelieu bowl	2 00
Washdown bowl with spud	9 90
Reverse trap bowl with spud	9 90
Syphon jet bowl with spud	15 40

CLOSET SEATS—

Oak post hinge seat and cover	3 85
Oak wood strip seat and cover	3 50
Mahogany finish post hinge seat and cover	4 05

CLOSET TANKS—

Low down, oak vitro or Pussyfoot with fittings less seat	12 50
White vitro or Pussyfoot with fittings, flush elbow and supply	16 60
Vitreous china tank with fittings, flush elbow and supply	16 00
Enamelled iron with fittings, flush elbow and supply	18 90

ALL LINES OF LEAD AND ZINC GOODS SELLING WELL

Montreal.

No changes in lead and zinc goods have been noted for some time. Sales in this line are reported as being quite good. Local prices are as follows:

LEAD AND ZINC PRODUCTS—

Lead pipe, per 100 lbs., up to 2 in.	14 50
Do., 2 in. to 8 in.	15 50
Do., 8 in. and over	16 50
Lead waste, per 100 lbs.	15 50
Lead wool, lb.	0 13
Lead sheets, 2½ lbs., sq. ft. lb.	0 10½
Lead sheets, 3 to 3½ lbs., sq. ft. lb.	0 10
Do., 4 to 8 lbs., sq. ft. lb.	0 09½
Cut sheets, ¾ lb. extra and cut sheets to size 1 lb. extra	0 24½
Solder, wiping, lb.	0 26
Solder, commercial, lb.	0 27
Solder, strictly, lb.	0 29
Solder, guaranteed lb.	0 39
Solder wire, lb.	0 11
Zinc sheets, casks	0 12
Do., broken lots	0 12

ENAMELLED WARE SELLING IN GOOD QUANTITIES

Montreal.

Sales of enamelled ware are reported as being quite good of late. The present discount of 30 per cent. is still in effect with most dealers, although it is reported that some dealers are offering a discount of 42 per cent. Current prices are given herewith:

ENAMELLED WARE—

Sinks, flat rim—	1 only	2 only	3 only
16 x 24	\$ 7 50	\$ 7 40	\$ 7 30
18 x 30	8 70	8 60	8 50
20 x 30	9 90	9 80	9 70
Bath tubs, roll rim, 4, 4½, 5 feet, 24 to 30 in. wide	51 40		
Bath tubs, 5½ feet	57 10		

Lavatories—

17x19 in. Apron F139 or P4045	15 30
18x24 in. Apron F154 or P3845 or P3847	23 60
18x21 in. Apron F169 or P4206	17 60
17x19 in. Roll rim. F241 or P4345	12 60
Less 30 per cent.	

METAL LATH SELLING IN GOOD VOLUME

Montreal.

Seasonable business in metal lath is reported by dealers locally. Prices remain firm and show no tendency to deviate from the following:

METAL LATH—	per sq. yd.
Painted—	
26 gauge	23c.
24 gauge	28c.
32 gauge	32c.
Galvanized, 5c. per sq. yd. extra.	

PRICES ON SOIL PIPE AND FITTINGS REMAIN FIRM

Montreal.

Sales in soil pipe and fittings are reported by dealers as being quite satisfactory. Prices show no tendency to change and are in effect locally as follows:

SOIL PIPE—

2 and 3 inch	20%
4 inch	25%
5 and 6 inch	20%
8 inch	20%

FITTINGS—

2 to 6 inch	37½%
8 inch	net

PRICES ON RANGE BOILERS REMAIN STEADY

Montreal.

There are no changes in the quotations on range boilers, the market remaining steady for some time. Trading is reported as considerably improved. List prices and discounts are as follows:

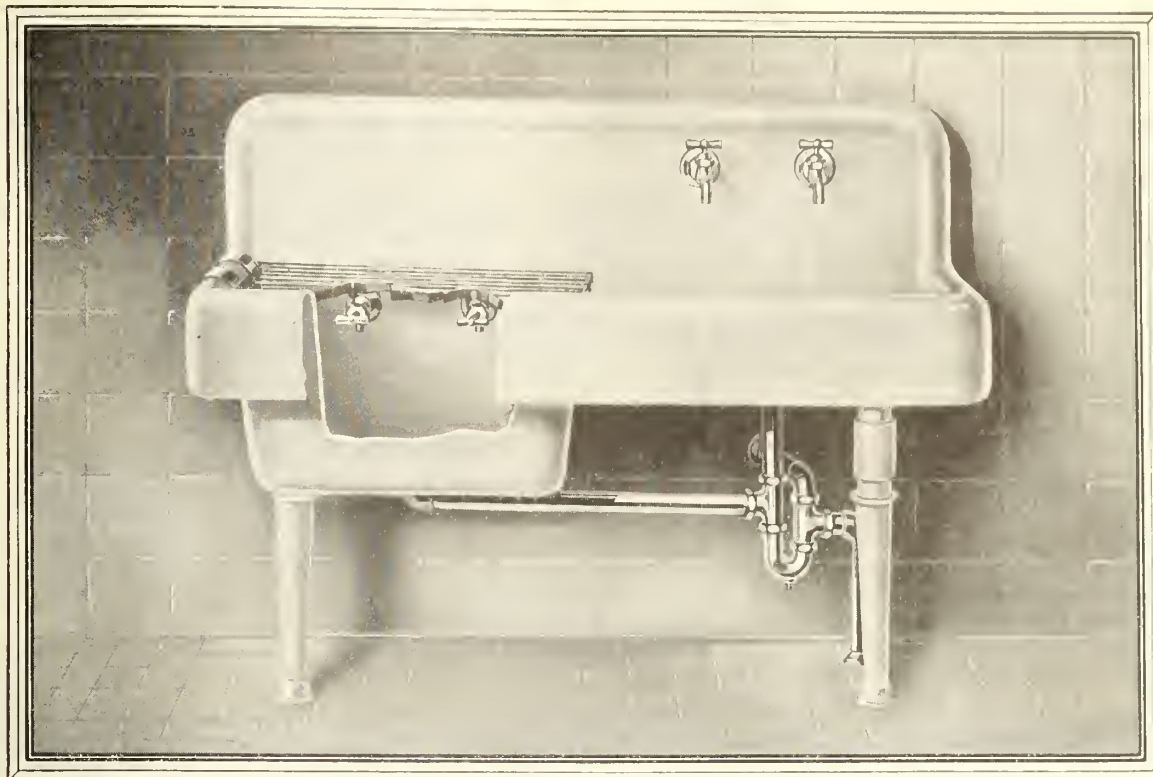
RANGE BOILERS—

5 Gallon	\$13 50
12 "	14 00
18 "	15 00
25 "	16 50
30 "	17 50
35 "	20 50
40 "	22 75
52 "	38 00
66 "	60 75
82 "	74 00
100 "	103 00
120 "	117 00
144 "	164 00
168 "	187 00
192 "	210 00
Discount Standard, 35 per cent.; Extra heavy, 25 per cent.	

Interest Again Aroused In Combine Legislation

INTEREST has once more been aroused in Bill No. 54, commonly known as the Combines Act, because of the recent announcement that the Minister of Labor had been charged with the general administration of the Act. The title and subject matter of this bill is such that it has always attracted public attention whenever it has been mentioned, because it deals with a subject that has, perhaps, been used more for all sorts of political purposes during the past fifty years, both in Canada and the United States, than any other public question.

Under this new Act, the professional classes, such as lawyers, who have their fees fixed by law, and doctors, who agree among themselves, as well as other professional and laboring classes, are exempt from its operations, but manufacturers and all classes of retail distributors, insurance and transportation companies, come under its operation.



A COMBINATION OF KITCHEN SINK AND LAUNDRY TUB. AN IDEAL FIXTURE FOR A SMALL HOUSE OR APARTMENT

SELL THE FIXTURES YOUR CUSTOMERS WANT

This combination of kitchen sink and laundry tub, for bungalows as well as for apartments, will win the instant favor of any housewife. Convenient as any kitchen sink of adjustable height, it is readily converted to a laundry tub. The

sink is always in service—only the drain board need be removed on wash day. Made of stainless enamel with faucets and connections of rust-proof brass. Build a bigger business by selling the exact equipment your customers want.

CRANE

CRANE LIMITED, GENERAL OFFICES: 386 BEAVER HALL SQUARE, MONTREAL
CRANE-BENNETT, LTD., HEAD OFFICE: 45-51 LEMAN STREET, LONDON, ENG.

*Branches and Sales Offices in 21 Cities in Canada and British Isles
Works: Montreal, Canada, and Ipswich, England*



"Triumph" self-closing faucet, ball bearing

Toronto Markets

TORONTO, Sept. 13.—Business conditions locally are improved over those existing two weeks ago, and reports on sales are most encouraging. The outlook as regards trade during the coming fall is also very encouraging, and all jobbing houses are carrying ample stocks in readiness for the brisk trade which is expected, and which in some cases has already been felt.

A substantial advance in price has been made on towel bars, soap holders, and other lines of nickel-plated bathroom fittings during the past two weeks, while a slight decline has occurred in coke tin-plates amounting to fifty cents per box. English galvanized sheets declined also from twenty-five to fifty cents per hundred pounds.

BIG ADVANCE IN PRICES OF BATHROOM FITTINGS

Toronto.

Due to increases in the cost of production, some lines of bathroom fixtures have been advanced in price to quite a noticeable degree.

The following lines have been advanced from 25 per cent. to 50 per cent., and, in some cases, even more, over the prices issued Aug. 21, 1922.

The new price list, which is dated Aug. 14, 1923, is now obtainable from the manufacturer. A few of the new prices are given herewith:

BATHROOM FIXTURES—(Gendron)—
(Nickle Plated)—

	Each
Soap Holder, No. 10205.....	1 05
Do., No. 10226.....	1 09
Brush Holder, No. 11217.....	0 40
Tumbler Holder, No. 12226.....	0 70
Paper Holder, No. 13206.....	0 56
Do., No. 13243.....	1 04
Towel Holder, No. 14236.....	0 50
Towel Holder, No. 18208.....	0 75
Towel Holder, No. 18203, 18"x11" clear glass.....	2 12
Do., No. 24203, 24"x11", clear glass.....	2 38
Do., No. 30203, 30"x11", clear glass.....	2 59
Do., No. 36203, 36"x11", clear glass.....	2 86
Combination fixture, No. 44217.....	2 53
Combination fixture, No. 44226.....	3 59
Glass Shelf, No. 48247.....	1 86
Hook, No. 61224.....	1 12
Mirror, No. 111628, 16"x28".....	8 50

COKE TIN PLATES TAKE LOWER PRICE LEVELS

Toronto.

Coke tin plates have been reduced in price from those prices given in Sanitary Engineer two weeks ago. This decline amounts to fifty cents per box.

Good sales are reported in these lines for the past two weeks.

Charcoal tin plates remain unchanged from former levels.

Special tin plates for boilers and milk can sizes remain at former levels. Prices are given herewith:

PLATES, (COKE TIN)—

28x28 100 lbs. basis, box.....	15 00
20x28 IC, 112s. box.....	15 50
20x28 IX, 112s. box.....	18 00
20x28 IXX, 56s. box.....	10 50
20x28, IXXX, 56s. box.....	11 50
20x28, IC Terne, 112s. box.....	15 00

PLATES (CHARCOAL TIN)—

20x28, IX, 56s. box.....	9 50	10 00
20x28, IXX, 56s. box.....	11 00	11 50

Small Lots Case
Per C. lbs. Lots

TIN PLATES—(For Boilers)—

14x60 IXX, 56 sheets per case..	12 50	12 00
14x60 IXXX,	12 50	12 00

TINNED SHEETS FOR MILK CANS—

16½ x 41¾ 18 ga.	9 65	9 15
21 x 41¾, 18 ga.	9 65	9 15
30 x 72, 20 ga.	14 50	14 00
30 x 45¾, 2 ga.	10 15	9 65
30 x 50, 22 ga.	10 25	9 75

30 x 54, 22 ga.	10 30	9 80
30 x 78, 22 ga.	10 35	9 85
30 x 72, 22 ga.	15 00	14 50
36 x 84, 22 ga.	15 00	14 50
42 x 84, 22 ga.	15 75	15 25
48 x 96, 22 ga.	16 50	16 00
30 x 50, 24 ga.	10 25	9 75
30 x 54, 28 ga.	10 30	9 80
60 x 58, 24 ga.	10 35	9 85
30 x 72, 24 ga.	15 00	14 50
36 x 84, 24 ga.	15 00	14 50
42 x 84, 24 ga.	15 75	15 25
30 x 72, 26 ga.	15 50	15 00

DECLINE IN PRICES ON ENGLISH GALVANIZED SHEETS

Toronto.

A small decline has taken place in the price of English makes of galvanized sheets. Queen's Head declined twenty-five cents per 100 pounds, and Fleur-de-Lis declined from twenty-five to fifty cents per 100 pounds.

Tank steel plates, blue annealed sheets, and black sheets, remain at former levels, as also do Premier and Apollo brands of Canadian galvanized sheets. Prices are given as follows:

SHEETS, GALVANIZED—		per 100 lbs.	
Premier and Apollo Brands—			
Premier and Apollo Brands—			
10½ oz. 3 ft. wide.....	7 10	7 25	
10½ oz. narrower.....	6 90	7 05	
28 U. S. gauge, 3 ft. wide.....	6 60	6 85	
28 U. S. gauge, narrower.....	6 50	6 65	
26 U. S. gauge.....	6 20	6 35	
22 and 24 U. S. gauge.....	6 05	6 20	
18 and 20 gauge.....	5 90	6 05	
16 U. S. gauge.....	5 75	5 90	
12 and 14 U. S. gauge.....	5 60	5 75	

F.o.b. and delivered in Toronto.
An extra 20c. per 100 lbs. is charged for Keystone and Premier brands copper-bearing sheets.

Queen's Head		Fleur de Lis	
28 gauge, base.....	7 25	7 00	7 25
26 gauge.....	6 85	6 60	6 85
24.....	6 55	6 30	6 55
22.....	6 40	6 15	6 40
18 to 20 ga.	6 00	5 75	6 00
28 gauge base.....	7 00	7 25	
26.....	6 60	6 85	
24.....	6 30	6 55	
22.....	6 15	6 40	
18 to 20 ga.	5 75	6 00	

TANK STEEL PLATES—

¼-in. and heavier, base.....	3 60
8-16 in.	3 95

BLUE ANNEALED SHEETS—

10 gauge, base.....	4 50	4 60
12 gauge.....	4 55	4 65
14 gauge.....	4 60	4 70
16 gauge.....	4 65	4 75

BLACK SHEETS—

18-20 gauge.....	5 05	5 30
22-24 gauge.....	5 10	5 35
26 gauge.....	5 15	5 40
28 gauge.....	5 25	5 50

A charge of 25c per 100 lbs. is made for less than case lots. An extra 10c. per 100 lbs. is also charged on sheets 26 in. wide.

NEW BAR EXTRAS LIST OBTAINABLE

Toronto.

The new list of bar extras on iron and steel, which is applicable to the dealer trade, has just been received off the

press by manufacturers and jobbers of bar iron and steel.

This list is called the "R" list and is dated effective Sept. 1, and takes the place of the old "D" list, which is now cancelled. There has been some delay in publishing these lists, but same may now be obtained from jobbers or manufacturers of steel and iron bars.

Base prices have not been changed recently. Steel bars are still selling at \$3.75 to \$3.90 per 100 lbs. base. Other prices now in effect are as follows:

IRON AND STEEL—		Per cwt.	
Bars, steel.....base	3 75	3 90	
Bands, 3-16 in. and lighter ..	4 25	4 50	
Hoops heavier than 1 in. x 20G.	5 50		
Hoops lighter than 1 in. x 20G.	6 00		
Shapes, smaller than 1 in.	4 00		
Sheets Galv., base.....	6 65		
Sheets, black, base.....	5 60	5 75	
Sheets, blue, base.....	4 60		
Plates, ¼ in. and heavier ..	3 75	4 00	
Plates 3-16 in.	4 15	4 40	
Cold rolled steel, rounds.....	4 15		
Sleigh shoe steel.....	4 10	4 15	
Cold rolled flat square, Hex. ..	5 75		
Tool steel, high grade.....	30 00		
Drill steel.....	18 50		
Crucible cast sheet.....	30 00	35 00	

CANADA PLATES SELLING WELL AT THIS SEASON

Toronto.

The sales of Canada plates have been very good during the past two weeks and very good business is expected during the next month in these lines.

Prices are not set at any particular figure. A range is shown in connection with the plates on which varying prices are being quoted, as follows:

CANADA PLATES—		Per box	
Ordinary, 75s.....	5 85		
Blue, 75s.....	6 15		
Blue and oiled, 75s.....	6 25		
Polished, 75s.....	7 05		
Ordinary, 60s.....	5 70	6 10	
Blue, 60s.....	6 00	6 25	
Blue and oiled, 60s.....	5 00	6 10	
Polished, 60s.....	6 30		
Ordinary, 52s.....	5 40	6 00	
Blue, 52s.....	5 60	6 15	
Blue and oiled, 52s.....	6 00		
Polished, 52s.....	6 80		
Welsh polished, 60s.....	7 35		
Welsh polished, 52s.....	7 25		

PIG IRON PRICE STEADY AT \$33.30

Toronto.

No change has occurred in the prices on pig iron. Some consumers of this material are of the opinion that lower prices will be experienced on pig iron in the near future, but up to the present no changes have occurred.

The eight-hour day being put into force in all large mills, has not had the effect of boosting prices, as was expected by the majority of the distributors.

PIG IRON—(Price per ton)—

In ordinary quantities..... 33 30

PRICES FIRM AT NEW LEVELS ON BATH FITTINGS

Toronto.

No changes in price have been made in bath fittings since the new levels established two weeks ago. The new levels established are as follows:

BATH FITTINGS—

N. P. brass handles or indexed, No. 3825	3 78
Indexed, china button, No. 3830.....	4 51
Deep Seal Por. S.N.P. traps, no vent.....	3 55
Waste and overflows, 19 ge. 1½ in. T.B.L.	4 00
Do., 19 ge. 1¼ in. country.....	3 00

Service is built into every Jenkins Valve!



Fig. 106
Jenkins Bronze Globe
Valve.

In every respect every Jenkins Valve of any type is designed, built, tested and guaranteed for the severest service in the use for which it is recommended.

The "Diamond Mark" on the body is an assurance of dependable service—of a valve that will stand up under the strain of usage that would create trouble with anything less dependable than a genuine "Jenkins."

Years of experience in valve manufacturing contribute to the perfection of Jenkins Design. Close inspection and rigid factory tests assure the dependability that never fails.

You should have a copy of Jenkins Catalog No. 9. It describes the entire line of Diamond Marked Valves in detail. It will be mailed free on request.



Fig. 491.
Jenkins' Angle—
Male Union.

JENKINS BROS., LIMITED

HEAD OFFICE AND WORKS: 103 St. Remi St., Montreal

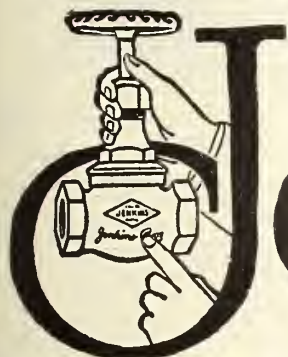
SALES OFFICES—Toronto, Vancouver.

EUROPEAN BRANCH—6 Great Queen St., Kingsway, London,
W.C. 2, England.

FACTORIES—Montreal, Bridgeport, Elizabeth.



Fig. 493.
Jenkins' Radiator
Valve, Screwed.



Always marked with the "Diamond"
Jenkins Valves
SINCE 1864

BRASS GOODS PRICES ARE FIRM AT NEW LEVELS

Toronto.

The newly established prices on brass goods are given herewith. Prices remain unchanged from those given in last issue of Sanitary Engineer.

BRASS GOODS—

BATH COCKS (Compression)—

No. 3825 Compression, complete with tails	3 75
No. 4 Std. Comp. Double Bath, No. 3829F	4 51
Ditto with China Index, No. 3830F	4 51

BATH COCKS (Quick Opening)—

Brass handle on top, No. 3850 F.	4 59
China handle on top, No. 3850 F.	4 72
Quatern Top China Hdle A3200	4 98
Brass handle on side, No. 3851F	4 95

(less Jewell's cup)

China handle on side No. 3852 F.	5 00
(less Jewell's cup)	

Quatern Side China Hdle. A3500	5 45
A2395 Mueller type Shower Faucet	9 25

3/4 in. N. P. Brass Supply Pipes, pair	2 20
1/2 in. N. P. Brass Supply Pipes, pair	2 30

1/2 in. Galvanized Iron Nickle Plated Supply Pipes	2 05
--	------

1 1/4 or 1 3/8 Overflow and Waste 18 gauge, N. P. on rough	3 00
--	------

1" T.B.L. Overflow and Waste, 18 gauge, N. P. on the rough	4 00
--	------

LAVATORY FITTINGS

Riley Basin Cocks China Index, per pair	7 00
Riley Jr. Basin Cocks, China Index, per pair	6 00

Adanac Basin Cocks, Brass Handle, No. 3632, per pair	4 68
Adanac Basin Cocks, China Handle, No. 3635, per pair	5 20

Quatern Basin Cocks, side China hdl, per pair, A2000	5 20
--	------

Quick Opening Basin Cocks, Brass Hdle. No. 3630, per pair	3 70
---	------

Quick Opening Basin Cocks, China Handle, No. 3633, per pair	4 28
---	------

Quatern Basin Cocks, Top China Hdle. per pair, A1900	4 28
--	------

Fuller No. 0 Basin Cocks, Brass Handle, No. 3650, per pair	4 10
--	------

Fuller No. 0 Basin Cocks, China Handle No. 3651, per pair	5 04
---	------

Midget No. 0 Basin Cocks, No. Index, No. 3623, per pair	3 10
---	------

Midget No. 0 Basin Cocks, With Index, No. 3623, per pair	3 10
--	------

3/4 in. N.P. Brass supplies to wall or floor	2 20
3/4 in. Galvd. supplies N. P.	2 05

1 1/4 in. N.P.S. Traps to floor No Vent 20G No. 4458	3 46
--	------

1 1/4 in. N.P.S. Traps to floor with Vent 20G No. 4462	4 53
--	------

1 1/4 in. N.P.P. Traps, No Vent 20G No. 4450	2 74
--	------

1 1/4 in. N.P.P. Traps No Vent Toronto By-law No. 4450	2 97
--	------

1 1/4 in. N.P.S. Traps with Vent Toronto By-law No. 4462	4 98
--	------

1 1/4 in. N.P.S. Traps with Vent Toronto By-law No. 4462	6 67
--	------

2 in. N.P.S. Traps with Vent Toronto By-law No. 4462	14 00
--	-------

Patent Overflow basin plugs	0 71
Pop up waste	5 00

Unique waste China Knob	5 50
Unique waste China Index	5 00

1 1/4 in. Deep Seal Trap No Vent	3 75
1 1/4 in. Deep Seal Trap No Vent	6 00

1 1/4 in. Elliptic Trap	6 50
1 1/2 in. Elliptic Trap	9 00

Whirlpool N.P. Traps list prices less	15%
---------------------------------------	-----

1/2 in. Lever Handle, Stop and Waste solid key, No. 3969	0 83
--	------

1/2 in. Lever Handle, Stop and Waste, pin cheek, lose key, No. 4032	1 04
---	------

1/2 in. Lever Handle, Stop and Waste, pat. can. lose key, No. 4044	1 21
--	------

1 1/2 in. Boiler Drain Cocks 3571	0 72
-----------------------------------	------

GROUND KEY WORK SELLING WELL AT NEW LEVELS

Toronto.

Good sales are recorded on ground key work as a result of the reduction which took place in prices a short time ago. Prices on some lines are given herewith:

GROUND KEY WORK—

Nos. 3954-3969	56% Off
Nos. 4031-4036	45% Off
Nos. 4043-4048	37% Off
Nos. 4049-4054	37% Off

Flatway stops, Iron Pipe, rough, No. 3968, 1/2 inch	0 77
---	------

Flatway stops, and waste, No. 3969, 1/2 inch	0 79
--	------

CORRUGATED SHEET SALES REPORTED AS LIGHTER

Toronto.

Lighter sales have been recorded during the last two weeks in the corrugated galvanized sheet market. Prices are unchanged from former levels, the discount still being ten per cent. of the list prices, which are figured per 100 square feet. Current prices are given herewith:

CORRUGATED SHEETS—

	Per 100 sq. ft.
--	-----------------

No. 28 gauge	7 00
No. 26 gauge	7 50
No. 24 gauge	10 00
No. 22 gauge	12 50
No. 20 gauge	14 00
No. 18 gauge	19 00

Less 10 per cent.

Lighter than 24 gauge and wider than 27 ins., 75 cents per square extra.

SOIL PIPE PRICES ARE FIRM AT FORMER LEVELS

Toronto.

Good quantities of soil pipe and soil pipe fittings have been sold this month, and prospects are good for a large fall trade.

Prices are same as issued in Sanitary Engineer of Sept. 1. No charges having occurred in the discounts from the regular list, the prevailing discounts are as follows:

SOIL PIPE AND FITTINGS—

2 inch	Less 20%
3 inch	Less 20%
4 inch	Less 25%
5 and 6 inch	Less 20%
8 inch	net

FITTINGS—

8 inch fittings	net.
2 to 6 inch	Less 37 1/2%

TRADING SEASONABLY GOOD IN EAVESTROUGH LINES

Toronto

Standard O. G. trough and round conductor pipe have been selling in good volume during the last two weeks.

The prices on these lines have not undergone any changes of late, the discount on the trough lines still being 65 and 5 per cent. off list, this discount also being applicable to list prices on conductor pipe, while the prevailing discount on outlets, cut-offs, tubes, elbows, and conductor hooks, is 50 and 10 per cent. off.

TROUGH (Eave)—

O. G. Square Bead—	Per 100 ft.	Per 100 ft.
--------------------	-------------	-------------

8 inch	\$15 90	15 inch \$34 50
10 inch	17 70	18 inch 44 00
12 inch	21 20	

O. G. Round and Half Round—	
-----------------------------	--

8 inch	16 90	15 inch 35 50
10 inch	18 70	18 inch 45 00
12 inch	22 20	

Less 65 and 5 per cent.

PIPE (Conductor)—

Plain, round or corrugated	Per 100 ft. in 10 ft. lengths
----------------------------	-------------------------------

2 in., in 10 ft. lengths, list	13 40
3 in. in 10 ft. lengths, list	22 30
4 in. in 10 ft. lengths, list	29 60
5 in. in 10 ft. lengths, list	48 00
6 in. in 10 ft. lengths, list	58 80

Less 65 and 5 per cent.

CONDUCTOR ELBOWS—

Plain, round or round corrugated:	
-----------------------------------	--

2 inch, list	\$ 5 25
3 inch, list	6 00
4 inch, list	10 50
6 inch, list	29 00

Outlets, cut offs, tubes and conductor hooks

List less 50 and 10 per cent.

SCRAP MATERIAL MARKET TAKES ON BRIGHTER TONE

Toronto.

Scrap markets are showing up a little more actively, more especially during the past week. A somewhat brighter undertone is noted by dealers and better business is expected in the near future.

Prices are low, and there is no reason why business should not go ahead in these lines as soon as a demand for scrap is felt. Existing prices are given herewith:

SCRAP MATERIALS—

f.o.b. Toronto

Gross Tons—

Scrap Iron

Heavy melting steel	11 00
Scrap pipe	7 00
Steel turnings	9 00
Malleable scrap	16 00
Rails, scrap	12 00

Net tons—

No. 1 cast	13 00
Stove plate	14 00
Car wheel (std.)	15 00

Scrap Metals

Heavy copper wire	12 00
Light chopper	9 00
No. 1 composition	9 00
Red brass turnings	8 00
Light brass	4 50
Heavy yellow brass	6 50
Heavy lead	5 05
Tea lead	3 00
Scrap zinc	4 75
Aluminum sheet and clippings	14 00
Aluminum cast	13 00
Hard lead	4 25

Scrap Rubber

Boots and shoes	1 50
High rubber boots	1 50
Auto tires	0 25
Solid tires	0 25
Inner tubes, mixed	2 50
Peelings, mixed	0 75

BRASS VALVES AND BIBBS FIRM AT NEW LEVELS

Toronto.

Prices on brass valves and bibbs are firm at the new levels established two weeks ago. No further changes have occurred in these lines. The discounts prevailing now on these lines are as follows:

BRASS VALVES & BIBBS (Current Discounts—

	Off list
--	----------

Compression goods, std.	48%
Quick Opening Compression Bibbs	45%
Quick Opening Bath Cocks	53%

Compression Bath Cocks, plain or indexed handle	45%
Compression Basin Cocks	36%
Quick Opening Basin Cocks	50%

Ground Key Stops and Stop and waste, flatway	56%
--	-----

LEAD AND ZINC GOODS SELLING WELL

Toronto.

Lead and zinc goods are selling in good volume. No changes in price have occurred during the past two weeks. Prices are given as follows:

LEAD AND ZINC GOODS—

Lead pipe, per 100 lbs., up to 2"	14 50
Do., 2" to 8"	15 50
Do., 8" and over	16 50
Lead waste, per 100 lbs.	15 50

Note—Lead pipe is subject to a discount of 10 per cent.

Lead traps and bends	15%
Lead wool, lb.	0 14 1/2
Lead sheets, 2 1/2 lbs., sq. ft. per lb.	0 12 1/2
Lead sheets, 3 to 3 1/2 lbs.	0 11 1/2
Do., 4 to 8 lbs., sq. ft. lb.	0 10 1/2
Cut sheets, 3/4 c. per lb. extra	
Cut sheets, to size, 1 c. per lb. extra	

Solder, guaranteed, lb.	6 30
Do., strictly, lb.	0 29
Do., commercial	0 26 1/2
Do., wiping	0 27
Do., wire	0 34 1/2

Zinc sheets, casks, lb.	0 11 3/4
Do., do., less, lb.	0 12 1/4

Sell Better Heating for Better Homes —It Pays—

"New King" selling points are easily understood; they "get across" because "New King" boiler construction is extremely simple. In a few words you are able to show clearly and graphically **why** "New King" gives even, generous heat on the coldest days.

Notice how perfect circulation is guaranteed at all times by the TWO WAY NIPPLE CONSTRUCTION. The "New King" firepot is made ENTIRELY INDEPENDENT OF THE FIRST SECTION, resulting in easier erection and less costly replacements in the event of accident.

These two details, simple though they are, give the householder what he desires above everything else—BETTER HEAT. Too, they give "King Boilers" a distinction which makes it worth your while to recommend and sell "King Boiler" Heating Systems.

Instal IMPERIAL RADIATORS with "King Boilers." They add, by their gracefulness, a touch of beauty to any home; their rugged construction and large radiating surfaces assure years of perfect heating satisfaction.

Write for Catalogue and Prices to-day.

Imperial Radiator Company, Limited

Head Office and Works: St. Catharines



TORONTO—228 St. Helens Ave.,
W. R. Blackhall, Manager.

BRANCHES
MONTREAL—1 Oak Street
S. T. Hadley, Manager.

HAMILTON—District Representative, W. Burrow, 115 Victoria Avenue, S.

AGENCIES

J. T. Blyth, 100 Standard Bank Building, Ottawa, Ontario.

J. H. Ashdown Hdwe. Co., Ltd., Winnipeg, Man. J. H. Ashdown Hdwe. Co., Ltd., Saskatoon, Sask.

T. L. Teek Co., Ltd., 1038-40 Homer Street, Vancouver, B.C.

Canadian Fairbanks-Morse Co., Ltd., 106-8 Dupont St., Quebec, P.Q.

J. H. Ashdown Hdwe. Co., Ltd., Calgary, Alta.

Carroll-Wilson, Limited, Edmonton, Alta.

F. S. Coombs, 136-8 Lower Water Street, Halifax, N.S.

PIPE FITTINGS SELLING IN GOOD VOLUME

Toronto.

Jobbing houses report that they have been shipping good quantities of both cast iron and malleable pipe fittings.

The large heating business anticipated during the fall months, and which is already being felt in these lines, is keeping up the good business in pipe fittings which has been prevalent during the last six months. Discounts in effect are given herewith:

PIPE FITTINGS—Cast Iron—	
Elbows, tees, etc., standard sizes.....	10%
Plugs, solid, countersunk and std.....	10%
Bushings	15%
Flanged unions	17½%
Flanged fittings	20%
Drainage fittings, black.....	22½%
Do., galvanized	27½%
C. I. Stop cocks, up to 4"	25%
C. I. Stop cocks, up to 4" with brass plug ..	15%
Ringhangers	30%
MALLEABLE FITTINGS—	
Bushings	15%
Hex. nipples, R. & L.....	25%
Steam cock wrenches	30%
Union ells and tees.....	40%
Boiler fittings (old style).....	32½%
Do., (new style)	27½%
Lip unions, all sizes.....	30%
Dart unions, blk. up to 2"	27½%
Dart Unions, blk. ½" also 2½" and over	10 and 10%
Wrought nipples to 4" close & short....	45%
Wrought nipples up to 4" long.....	50%
Wrought nipples, 4½ in. and up long	40%
Wrought nipples, up to 4" close & short....	45%
Do., 4½" and up, close and short.....	35%
Malleable fittings, sold from price list, less	63%

COMPRESSION GOODS ARE SELLING WELL AT NEW PRICES

Toronto.

The new and lower prices put into effect two weeks ago on compression goods have had a stimulating effect upon the sales in these lines.

Plumbing jobbers report that an improvement has been noted in the sales of most of the lines affected. Prevailing prices are given as follows:

COMPRESSION GOODS—	
Compression stops No. 3450 brass fin., ½ inch, each.....	0 86
Compression stops, No. 3450, N.P., ½ inch, each	1 01
Lavatory stops, No. 3466, N.P., ¾ in., ea. 1	21
Do., No. 3468, N.P., ¾ in., each.....	1 21
Compression stop and wastes, No. 3483 ½ inch	0 89
Compression stop and wastes, ¾ in., 1	29
Brass finished bibbs, ½ in., No. 3000, each	0 86
N.P. finished bibbs, ½ in. No. 3030, ea. 1	01
Brass hose bibbs, ½ in. No. 3001, ea....	0 99
N.P. hose bibbs, ½ in., No. 3001, ea....	1 14
Loose flange bibbs, ½ in. N.P. No. 3208	1 43
Loose flange hose bibbs, N.P., ½ in. N. P. No. 3029	1 56
Compression Bibbs No.'s 3001-3041....	48% Off
Compression Bibbs No.'s 3053-3058....	43% Off
Compression Bibbs, No.'s 3084-3085....	49% Off
Quick Opening Comp. Bibbs, 3100-3115	45% Off
Quick Opening Comp. Bibbs, 3116-3119	45% Off
Ball or roller bearing, self-closing, 3338-3850	40% Off
Stops also stop and waste cocks—	
Compression, 3450-3453	48% Off
Compression, 3462-3463	43% Off
Compression, 3466-3479	45% Off
½ inch as 3483 listed at \$32.40 doz. less	67%
Urinal cocks, compression, 3500-3508....	25% Off
Sill and boiler drain cocks, 3560-3568....	50% Off
½ and ¾ list only used.	
Add 10c net for N. P. or finished.	
Boiler Drain cocks, No. 3571, net.....	0 72

LOCAL PRICES STEADY ON INGOT METALS

Toronto.

Prices have not been changed on ingot metals, in the local markets, during the past two weeks.

Trading has been rather spasmodic in most metals, and prices in primary mar-

kets are inclined to be more active of late, though no changes have been made to the extent of fluctuating local prices. Quotations in force now are as follows: INGOT METALS—

Copper \$18.00 to \$19.00; Tin \$45.00 to \$46.00; Lead \$8.00 to \$8.25; Spelter \$9.00; Antimony, \$8.25 to \$8.50; Aluminum, \$23.00 to 25.00.

BRISK TRADE IN FURNACES, RADIATORS AND BOILERS

Toronto.

Heating firms report that during the year the heating business has been very good, a steady trade having been maintained in furnaces all year, with the exception of about six weeks in the summer, when trading was quieter in this line.

Dealers in boilers and radiators at present are exceptionally busy, and the heating business in general is in a very

healthy condition. Prices, as quoted herewith, have not been changed for some time past.

RADIATORS AND BOILERS—

Revised radiator list prices are for 1, 2, 3, 4 and 5-column radiators per square foot.
38 in., \$1; 32 in., \$1.10; 30 in., \$1.15; 26 in., \$1.20; 23 in., \$1.26; 22 in., \$1.30; 20 in., \$1.36; 18 in., \$1.40; 16 in., \$1.50; 14 in., \$1.55; 13 in., \$1.60.

Discount on 2, 3, 4 and 5 column standard sizes, 44 per cent. for water and 45 per cent. for steam.

Discount on 1-column standard size, and 2, 3, and 4-column hospital sizes 36 per cent. for water and 37 per cent. for steam.

Discounts on 1 column hospital size water 22 per cent. Steam 23 per cent.

Wall radiators—5 ft., \$1.15; 6 ft., \$1.10; 7 ft., \$1.05; 9 ft., \$1.05; 12 ft., \$1.05. Discount 41 per cent.

BOILERS—

Water:

Round 52 per cent. off list. Square 8 per cent. off list.

Steam:

Round, 13 per cent. off list; Square, list plus 7 per cent.

Winnipeg, Man.

WINNIPEG, Sept. 13.—Dealers locally report fair sale for steam-fitting and plumbers' lines. Fusible plugs have moved upward while brass valves show a revision in discounts. Prices on the whole have a tendency to remain steady at present levels.

Eavestrough and conductor pipe are having fairly good sales. Soil pipe and corrugated sheets continue steady. Trading in closet goods is seasonable and an improvement is expected. Lead and zinc goods continue to rule steady.

SALE OF COMPRESSION GOODS SEASONABLE

Winnipeg.

A seasonable business is reported by dealers locally for compression goods. There has been a revision in discounts on standard brass valves of the globe and angle variety and discounts are list price less 20 per cent.

FUSIBLE PLUGS MOVE UPWARD

Winnipeg.

Fusible plugs of the Alberta pattern are quoted at higher levels. Size ½ inch is quoted at 90 cents each, ¾ inch at \$1 and 1 inch at \$1.35.

LEAD AND ZINC GOODS STEADY

Winnipeg.

Lead and zinc prices show no change. Lead on primary markets shows a slight advance and a revision in the price of lead goods is likely to take place in the near future.

PRICES ON WROUGHT PIPE UNCHANGED

Winnipeg.

No change is noted in the price of wrought pipe. Prices are still being based on price list issued a short while ago.

RADIATORS AND BOILER PRICES ARE STEADY

Winnipeg.

No change is reported in the price of radiators or boilers. With building activity quiet the demand for these goods has fallen off.

NO CHANGE IN SOIL PIPE PRICES

Winnipeg.

A steady tone prevails to the soil pipe market and dealers report sales seasonable for this line.

CORRUGATED SHEETS CONTINUE STEADY

Winnipeg.

Prices on corrugated sheets continue steady and dealers locally report a fair amount of business passing.

TRADING IN CLOSET GOODS QUIET

Winnipeg.

Prices on closet goods on the local market remain steady. Trading is quiet at the present time but dealers are looking forward to an improvement.

STEADY TONE TO SHEETS AND PLATES

Winnipeg.

Prices of sheets and plates remain steady and show no tendency to deviate from present prices.

EAVESTROUGH AND CONDUCTOR PIPE REMAIN FIRM

Winnipeg.

Dealers report the demand for eavestrough and conductor pipe as somewhat quiet at the present time and as the season advances they are looking forward to an improvement.

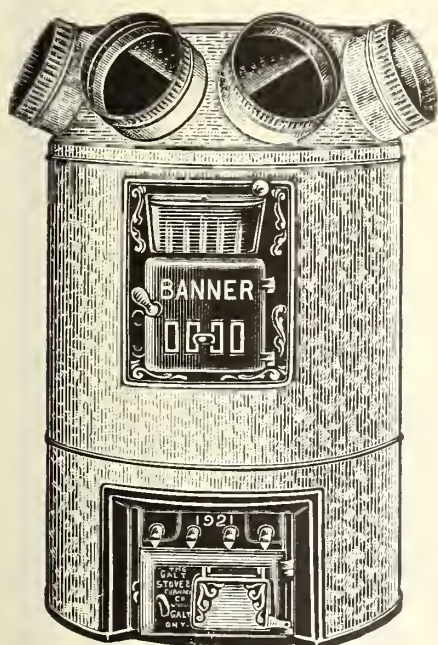
PIPE FITTINGS SHOW NO CHANGE

Winnipeg.

There is no change in quotations on pipe fittings. Dealers report steady sales in these lines.



Banner Furnaces Sell Quicker This Way



The Banner Furnace

YOUR heating prospect demands just one thing from his furnace—abundant heat throughout the long, bleak winter months.

Emphasis on the **PROVEN** heating qualities of the Banner Furnace rather than its fine mechanical features will bring quicker results.

Each type of Banner Furnace has its definite sphere of usefulness. Any home, no matter the size, can be quickly, healthfully heated with the Banner Pipe or Pipeless.

Every owner of a Banner Furnace is assured of a sturdy, long-lived heating plant that will give years of splendid heating comfort.

Every furnace prospect on your list is a potential "Banner" owner. Persistence, a graphic explanation of Banner's better heating features and the booklet of Banner testimonials will make many furnace sales.

We will gladly supply you with further information, literature, etc.

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GALT - ONTARIO

A PIECE OF TABLE-WARE

may be solid silver without the "sterling" stamp, the accepted "Hall Mark" of quality.

But you don't know.

A Bank might be honest and efficient without Government inspection.

But you don't know.

A business concern may be absolutely responsible without a commercial rating.

But you don't know.

A publication may have the circulation it claims without verification by the Audit Bureau of Circulations.

But you don't know.

Better be sure.

The circulation of Sanitary Engineer, Plumber and Steamfitter of Canada is verified by the A.B.C. Sanitary Engineer, Plumber and Steamfitter of Canada is the only Plumbers' Journal in Canada that will supply an A.B.C. Audit.

Any Plumber can interest a hot-water- heat user in a Mueller Auto- matic System of Hot Water Heat Control

THE automatic feature of this System, alone, is a powerful selling argument. Once connected up and placed in operation the System requires no further attention—the water is supplied automatically—the relief is automatic as well as the damper regulations. The householder keeps up the fires—the System does the rest. And here are a dozen other talking points.

1. The Mueller System requires no unsightly expansion tank, eliminating danger of freezing or overflow.
2. Can be installed in less than an hour on either old or new systems.
3. Maintains fresh water in system at all times.
4. Keeps System clean because of the rapid circulation due to pressure and fresh water.
5. Automatic damper control saves fuel.
6. Perfectly safe—impossible to have too high or too low pressure in the Mueller System.
7. The Reducing Valve and Relief Valve are positive in action, opening and working freely even after long periods of inactivity.
8. The water does not boil nearly so quickly as in the old type open systems with sluggish water.
9. Reducing Valve closes when the System is filled and the pressure reaches 10 pounds.
10. When the pressure reaches 25 pounds the Relief Valve operates allowing a small amount of water to pass from the system.
11. Both of the above operations are automatic and take place without the attention or knowledge of the owner.
12. Being Mueller Made, the System is thoroughly dependable—an absolute insurance of satisfaction to you and your customer.

H. MUELLER MFG. CO., LIMITED, SARNIA, ONT.

Water, Plumbing and Gas Brass Goods and Tools.

Forgings in Brass and Bronze; Screw Machined Products.

American Factory at Decatur, Ill., U.S.A. Branches, New York and San Francisco. Mueller Metals Co., Port Huron, Mich., makers of "Red Tip" Brass Rod, Brass and Copper Tubing.

**AIR COMPRESSORS**

Smart Turner Machine Co., Ltd., Hamilton, Ont.

AIR LINE SYSTEMS

C. A. Dunham Co., Ltd., Toronto.

ALUMINUM CASTINGS

Fittings, Limited, Oshawa.
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AIR VALVES

Beaton & Caldwell Mfg. Co., New Britain, Conn.
Crane, Limited, Montreal, Que.
W. H. Cunningham & Hill, Ltd., Toronto.
C. A. Dunham Co., Ltd., Toronto.
Empire Mfg. Co., Ltd., London and Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
Wallaceburg Brass & Iron Mfg. Co., Ltd., Wallaceburg, Ont.
Wolverine Ltd., Toronto, Ont.

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Steel Trough & Machine Co., Ltd., Tweed, Ont.

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Gendron Mfg. Co., Toronto.

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Gurney Foundry Co., Limited, Toronto.
Imperial Radiator Co., Ltd., St. Catharines, Ont.
Lord & Burnham Co., Ltd., Toronto.
Warden King, Ltd., Montreal.

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BOLTS AND NUTS

Fittings Limited, Oshawa.

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Empire Mfg. Co., Ltd., London and Toronto.
Fittings, Limited, Oshawa.
Galt Brass Co., Limited, Galt.
Kerr Engine Co., Ltd., Walkerville.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
Standard Sanitary Mfg. Co., Ltd., Toronto
Hamilton.
Wallaceburg Brass & Iron Mfg. Co., Ltd., Wallaceburg, Ont.
Wolverine Ltd., Toronto, Ont.
W. H. Cunningham & Hill, Ltd., Toronto.

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Crane, Limited, Montreal, Que.
Empire Mfg. Ltd., London and Toronto.
H. Mueller Mfg Co., Ltd., Sarnia, Ont.
Wolverine, Ltd., Toronto, Ont.

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Canada Metal Co., Ltd., Toronto.
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Crane, Limited, Montreal, Que.
Galt Brass Co., Limited, Galt.
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H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
Standard Sanitary Mfg. Co., Ltd., Toronto, and Hamilton.

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H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
Standard Sanitary Mfg., Co., Ltd., Toronto.
Hamilton.
Steel Trough & Machine Co., Ltd., Tweed, Ont.

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T. G. Griffith & Co., Ltd., Toronto, Ont.
Steel Trough & Machine Co., Ltd., Tweed, Ont.

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J. E. Farrell, 210 Galley Ave., Toronto, Ont.
Smart Turner Machine Co., Ltd., Hamilton, Ont.

COUNTRY RESIDENCE EQUIPMENTS

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T. G. Griffith & Co., Toronto, Ont.
H. Mueller Mfg. Sarnia, Ont.
Smart Turner Machine Co., Ltd., Hamilton, Ont.

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Crane, Limited, Montreal, Que.
Fittings Limited, Oshawa.

DAMPER REGULATORS

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Fittings Limited, Oshawa.
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Standard Sanitary Mfg. Co., Ltd., Toronto.
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Warden King, Ltd., Montreal.

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H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
Standard Sanitary Mfg., Co., Ltd., Toronto.
Hamilton.

EJECTORS, STEAM

Crane, Limited, Montreal, Que.
Kerr Engine Co., Walkerville.

ENAMELWARE

Amherst Foundry Co., Lto., Amherst, N.S.
Canada Metal Co., Ltd., Toronto.
Crane, Limited, Montreal, Que.
Empire Mfg. Co., Ltd., London and Toronto.
Galt Brass Co., Limited, Galt.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
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H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
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Inventions, Ltd., (Rawlplug) 123 Bleury St., Montreal.

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Crane, Limited, Montreal, Que.
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H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
Pittsburgh Water Heater Co., Pittsburgh, Pa
Ruud Mfg. Comany, Ltd., Toronto.
Standard Sanitary Mfg. Co., Ltd., Toronto.
Hamilton.
W. H. Cunningham & Hill, Ltd., Toronto

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Fittings, Limited, Oshawa.

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Galt Brass Co., Galt, Ont.

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Crane, Limited, Montreal, Que.
Lord & Burnham Co., Ltd., Toronto.
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W. H. Cunningham & Hill, Ltd., Toronto.

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JAPANNING

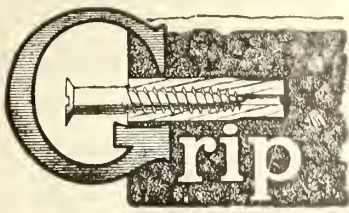
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You can't be without Rawlplugs if you want quick, permanent attachments!

For attaching plumbing, fixtures, or any other job that needs screws, Rawlplugs are best and most economical.

Leading Contractors and Engineers use them because they hold equally well in Brick, Plaster, Hollow Tile, Marble, Slate, Concrete or Cement and because they never rot through dampness. Rawlplugs save time, assure a job that will last indefinitely and reflect credit on your work. We will be pleased to send you samples of this fibre screw anchor and our list price—upon receipt of your letter. Write *immediately*.

INVENTIONS LIMITED

The Rawlplug Co. of Canada

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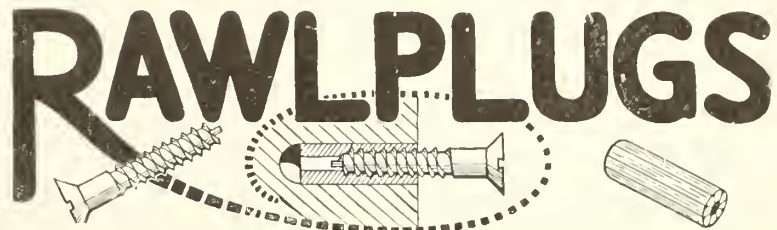
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H. G. Evans, 58 Water St., St. John, N.B.

Frank Raw & Co., 325 Howe St., Vancouver, B.C.

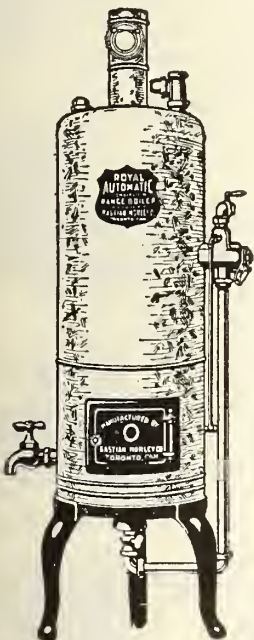
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FIX IT WITH



THE Royal

Automatic Gas Water Heaters



The word "Service" does not mean a thing to the plumber who installs a Royal Heater.

Once this compact heater and storage tank is erected, it will carry on for years without any call for your services to adjust or repair it.

The Royal Automatic Gas Water Heater and Boiler combined gives the kind of satisfaction that prevents complaints, makes friends, builds business and puts money in the bank.

Sold only through or by plumbers.

Write for full information.

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125 Hanson St., TORONTO

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Gurney Foundry Co., Limited, Toronto.
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MIXING VALVES

Canada Metal Co., Ltd., Toronto.
Crane, Limited, Montreal, Que.
Empire Mfg. Co., Ltd., London and Toronto.
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C. A. Dunham Co., Ltd., Toronto, Ont.

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W. H. Cunningham & Hill, Ltd., Toronto.
Healy-Ruff Company, Minneapolis, Minn.

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Canada Metal Co., Ltd., Toronto.
Canadian Tube and Iron Co., Ltd., Montreal.
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Empire Mfg. Co., London and Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
Standard Sanitary Mfg. Co., Ltd., Toronto, Hamilton.

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Empire Mfg. Co., Ltd., London and Toronto.
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Wolverine, Ltd., Toronto, Ont.
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Crane, Limited, Montreal, Que.
Wolverine, Ltd., Toronto, Ont.
Empire Mfg. Co., Ltd., London and Toronto.
W. H. Cunningham & Hill, Ltd., Toronto.

PIPE, SOIL AND FITTINGS

Anthes Foundry Co., Toronto and Winnipeg.
Canada Metal Co., Ltd., Toronto.
Crane, Limited, Montreal, Que.
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Fittings, Limited, Oshawa.
Forwell Foundry Co., Kitchener, Ont.
Katie Foundry Co., Galt, Ont.
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Toronto Hardware Mfg., Co., Toronto.
Warden King, Ltd., Montreal.

PIPE THREADING TOOLS AND MACHINERY

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Crane, Limited, Montreal, Que.
A. B. Jardine & Co., Hespeler.
W. H. Cunningham & Hill, Ltd., Toronto.

PIPE WRENCHES

Crane, Limited, Montreal, Que.
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PLUMBERS' TOOLS

Crane, Limited, Montreal, Que.
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PNEUMATIC WATER SUPPLY TANKS

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Crane, Limited, Montreal, Que.
Empire Mfg. Co., London and Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.

PUMPS

Ashwell & Nesbitt, Ltd., Leicester, Eng.
Canadian Fairbanks-Morse Co., Ltd., Montreal, Que.
W. H. Cunningham & Hill, Ltd., Toronto.
T. G. Griffith & Co., Ltd., Toronto, Ont.
H. Mueller Mfg. Co., Limited.
Smart Turner Machine Co., Ltd., Hamilton, Ont.
Steel Trough & Machine Co., Ltd., Tweed, Ont.

PUMP, HAND AND POWER, FOR PAINTS, OILS, OIL AND GASOLINE

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H. Mueller Mfg. Co., Limited.
Smart Turner Machine Co., Ltd., Hamilton, Ont.
Beaton & Cadwell Mfg. Co., New Britain, Conn.

RADIATORS

Crane, Limited, Montreal, Que.
Gurney Foundry Co., Limited, Toronto.
Imperial Radiator Co., Ltd., St. Catharines, Ont.
Lord & Burnham Co., Ltd., Toronto.
Warden King Ltd., Montreal.

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Crane, Limited, Montreal, Que.
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RADIATOR NIPPLES

Fittings, Limited, Oshawa.

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Gurney Foundry Co., Ltd., Toronto.

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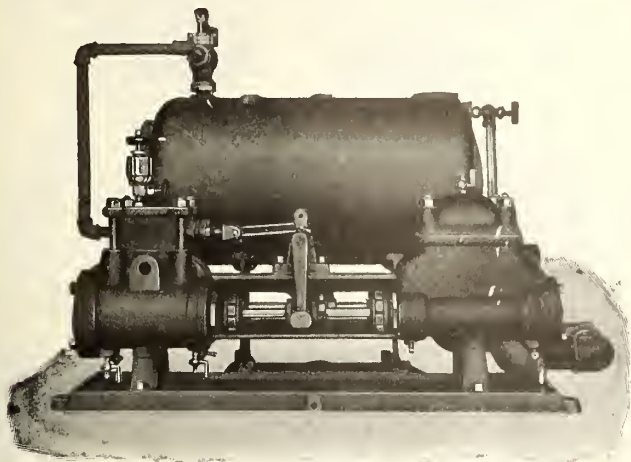
Crane, Limited, Montreal, Que.
Greenfield Tap & Die Corp., Galt, Ont.
Trimont Mfg. Company, Boston, Mass.

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Crane, Limited, Montreal, Que.
Fittings, Ltd., Oshawa.

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SANITARY ENGINEER

KEEPING ABREAST OF THE TIMES



No. W-153.
A popular type of automatic Feed Pump and Reservoir.

Send for Catalogue No. 12

Heating engineers have always been completely satisfied with the work done by our pumps.

And when the time arrives for you to instal or improve your heating equipment you can't go wrong by choosing a Smart-Turner Feed Pump and Reservoir.

Consult with us about your special requirements to get the best results.

Fisher Steam Specialties—excel in their field—Order from us.

The SMART-TURNER MACHINE COMPANY, Limited
HAMILTON - - - CANADA

Representatives in TORONTO, MONTREAL, WINNIPEG and ST. JOHN



FITTINGS LIMITED

OSHAWA, CAN.

MANUFACTURERS OF

"DIAMOND" PIPE FITTINGS

PNEUMATIC WATER SUPPLY SYSTEM

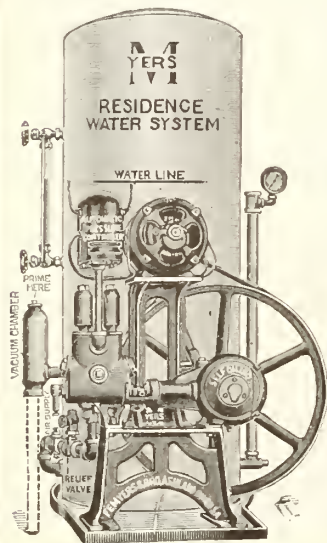
Gives country residents all the advantages of a city water system without the excessive cost

The wide-awake dealer will make big profits out of this system among customers who now have difficulty with their water supply. It is so simple to operate and costs practically nothing for upkeep.

The outfit consists of an air-tight steel tank which can be placed in the basement, and a "Myers" famous guaranteed pump (hand or power), suitable for pumping air or water, together with pipes and fittings.

Any plumber or gas fitter can easily install it. Every outfit guaranteed to do the work for which it is designed. For small or large dwellings.

Write us for Water System Catalogue and prices. Now is the time to interest your customers.



The STEEL TROUGH & MACHINE CO., LTD.

Tweed, Ont., Canada

TORONTO OFFICE:—220 King St. West; A. R. Wooldridge, Representative.

MONTREAL OFFICE:—10 Victoria St., G. M. Price, Representative.

RADIATOR HANGER

YOU'LL USE 'EM YET!



Style R

Advantage No. 10

Besides pleasing customers you can complete contract and receive final estimate before floors are laid.

For ANY style radiator; ANY type wall construction.

Write for the whole list of their advantages.

Healy-Ruff Co.

Dept. 23

Minneapolis, Minn.

"Made in Canada"

Farrfhern Steam Service

If you have a complicated steam job, stop merely trying, and have our expert immediately give it the "once over."

Stop wishing—let us rip into the trouble for you. Others do it.

In the solving of steam and condensation problems, whether it is steam process or heating work, we can be of service to you, being specialists in this line.

If you are interested in giving your customers the most economical, efficient, and dependable type of equipment for service in returning condensation and boiler feeding, write us for information.

Farrfhern Steam Service

Limited

304 Manning Chambers, Toronto

WROUGHT PIPE



Suitable for the approaching period of building activity, road construction, etc. This is a line of great importance in making successful, profitable contracts. Our C. T. Brand of Wrought Pipe has been

THOROUGHLY INSPECTED

by practical, experienced men. It is tested to 600 lbs. hydraulic pressure, and branded with our trademark. We carry this line of reliable pipe in sizes 1/8-in. to 4-in. Black or Galvanized. We also manufacture nipples and couplings, black and galvanized, in all sizes.

Ask your Jobber for C. T. Brand Wrought Pipe

Canadian Tube and Steel Products Co., Ltd.

Operating Canadian Tube and Iron Co., Limited
Works at Lachine Canal, Montreal



Tapped Closet Bend

Easier to attach
More permanent
Cost less



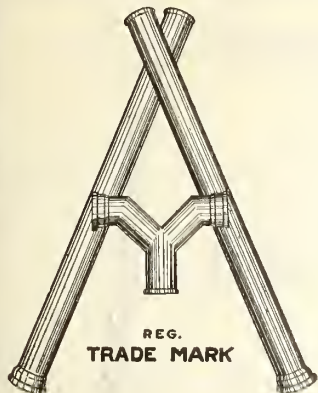
CARHARTT

"IN ALL THE WORLD NO



TRADE MARK

OVERALLS LIKE THESE"



USE

TESTED Soil Pipe

IT COSTS NO MORE AND YOU KNOW THE JOB IS RIGHT

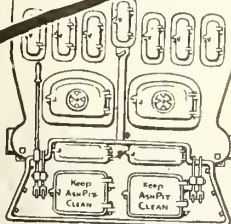
Manufactured by

FORWELL FOUNDRY, LTD.

KITCHENER, ONT.

Burnham Boilers

This square shouldered, broad chested Twin is about 71 inches wide and but slightly over 80 inches high.



Let The Lie Lie

If a thing isn't so, and you find it out, and go right on letting folks believe it's so, is that a lie?

If it is, then we are letting the lie lie, by not changing the ratings on the Burnham Twin Sectional Boiler.

The ratings are now altogether too low, according to the work the boiler did over and over again during last winter's severest of tests.

But we are not going to jack up the ratings. We prefer to have it do more than we claim it will do.

Lord & Burnham Co. Limited of Canada

Boiler Department

Harbor Commission Bldg., Toronto, Ont.



Factory: St. Catharines, Ont.

“Y
E
S”
!



This is NOT a
Toronto Range Boiler

TORONTO HARDWARE MFG.
CO., LIMITED

Are These The Opportunities You're Looking For?

Fan Heating and Ventilating Engineering is the pinnacle of all other forms of heating, and of all branches of steam fitting and sheet metal work. It prepares you for:

1. For Employers it enlarges their business opportunities 100%.
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3. Or as Designing Engineer of some large Heating Contractor.
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5. As Chief Engineer with a Heating or Furnace Manufacturing Co.
6. Later a Consulting Engineer to Architects and Building Contractors, etc.

Which of These Are You Working for?

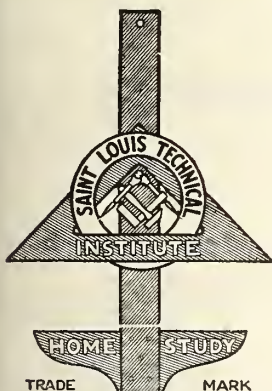
Full Information Free.

Select Your Course.

[] Fan Heating and Ventilating Engineering. [] Sheet Metal Design and Pattern Drafting.

[] Business Management, for office folks.

ST. LOUIS TECHNICAL INSTITUTE



4543 Clayton Avenue

O. W. Kothe, Prin.

St. Louis, Mo.

Gurney Reputation is Something You Can Sell

As a practical heating engineer, you know that people are demanding proven heating systems. Antiquated "coal eaters" have wearied a lot of furnace owners by their wastefulness and drudgery. You've got to show performance for the make of Boiler you recommend.

You know just as well that Gurney Hot Water and Steam Boilers have a long-established reputation for reliability, efficiency, economy and easy operation. You can bank on that reputation, built up by three generations of Gurneys.

No other heating system made on this continent can show fewer repairs than a Gurney. That's a fact you can prove to any boiler prospect.

In specifying Gurney Heating you are guaranteeing satisfaction to the user and adding to your prestige as a heating engineer. And, of course, we stand four square behind your recommendation of Gurney Boilers and Radiators.

Yours sincerely,

Holt Gurney

P.S.—Why not write, and see if we've some suggestions for you? There are lots of replacement jobs to be had this Fall.

Gurney



Gurney Furnaces for Steam, Hot Water and Warm Air
—Gurney Stoves for Electricity, Gas, Coal and Wood
are good products worthy of the Gurney name.

Is this special border familiar to you? A consumer advertisement in our National Campaign told, within this very border, how a Gurney Hot Water System paid \$43 annual dividends in saved coal. And it advertised you in these words: "The steamfitters who install our furnaces are at your service to give you advice and estimates of the cost of installing Gurney Hot Water or Hot Air Furnaces in old or new houses." Why not benefit from this Gurney advertising?

The test of time has proved Gurney Heating to be efficient, economical, elastic. There's a "Gurney" system that will solve every heating problem with credit to the engineer who installs it.

Have you the latest literature on Gurney Boilers and Radiators? Let us have your request to-day.

The Gurney Foundry Company Limited

Toronto and Vancouver

GURNEY-MASSEY COMPANY
Montreal

GURNEY NORTHWEST FOUNDRY CO.
Winnipeg

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Quality



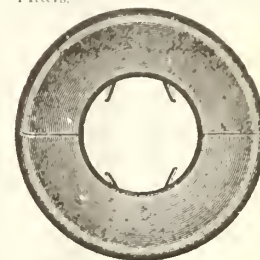
Service



Always Necessary

GEM NO. 4 AUTOMATIC AIR VALVE.

This automatic air valve is made of the best brass obtainable and is equipped with high grade carbon. The mechanism is perfect, every valve being guaranteed by us. Ask for a catalog of Steam Specialties. We manufacture many of interest to Canadian Plumbers and Steam Fitters.



You can have as complete a finished piece of work as is possible if you insist on using reliable floor and ceiling plates. They hide all bored places in the ceiling. Are coming more in vogue all the time.

The No. 10A Narrow Flange Plate is Steel Hinged, Flanges 3-4 ins. wide. Highly finished. Especially designed for Twin Connection. "Narrow" can be attached to mains and risers at the very last.

The Beaton & Cadwell Mfg. Company
New Britain, Conn.

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CHRISTIE UNIT SYSTEM SEPTIC TANKS

Convenience for ALL. Thousands of homes can be modernized. Any place where there is NOT a Public Sewer CHRISTIE'S UNIT SYSTEM SEPTIC TANK is the only correct method of disposal.

HEALTHY, CONVENIENT, ECONOMICAL

Made of Reinforced Concrete. Can be shipped anywhere. Easy to install. Low in price. Both syphon and overflow type. No job too small. None too large. We have a type for both heavy and light soils.

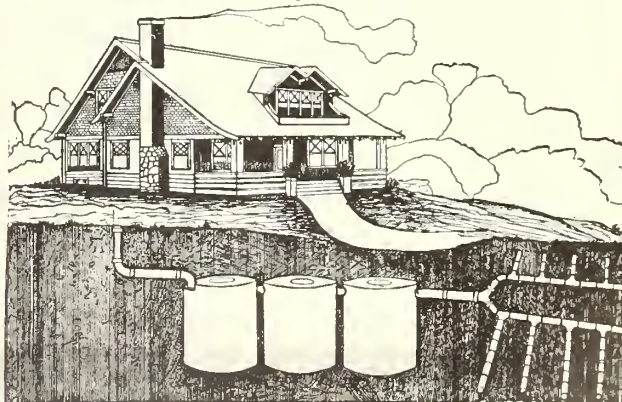
HOMES, SCHOOLS and SUMMER HOUSES.

Write for catalogue and dealers' price list.

Manufactured By

Christie Concrete Products Co.

Lindsay, Ontario



PATENTED



IF there were only one Safety Relief Valve in the world there would be no mental effort required in picking the right one to handle that important work of yours. But there are many hundreds in this country.

Some are good, and others not so good.

Many people think the Donnelly Relief Valve is about the best of the lot. Of course we claim that much and can prove it.

Ask your jobber or write us.

IRA I. NELSON
PLUMBING SPECIALTIES
TEN HIGH STREET
BOSTON, MASS.
U. S. A.

Dart Union Pipe Couplings are
Bronze to Bronze
(Both Face and Seat)

This feature prevents deterioration at the vital point, and is the Reason Why

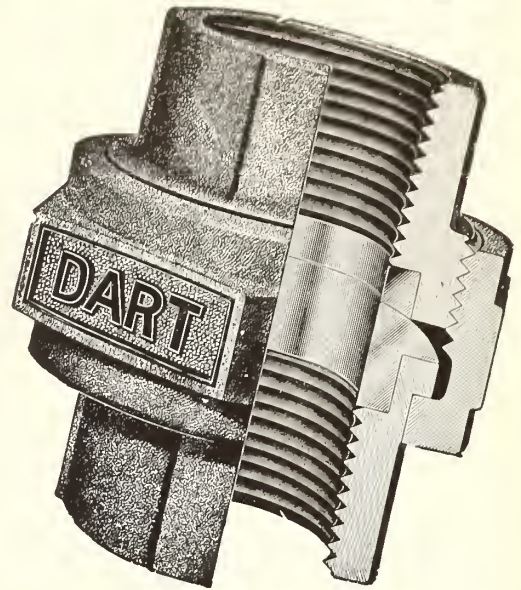
**DART UNIONS
STAY TIGHT**

—*permanently*

Dart Unions are really Economical and Troubleproof. Have you tried them?

Sold by all Jobbers

Dart Union Co., Limited, Toronto, Ont.



BEAVER BRAND

Porcelain Enamel Ware

—Your Guarantee of Quality—

Beaver Brand Enamelware by its ability to meet the highest demands for service under all conditions, has established itself in the confidence of the public to such an extent that each month witnesses an ever-increasing demand for products of Beaver manufacture.

Amherst Foundry Co., Limited

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E. B. PLEWES
197 Princess St., Winnipeg

Better in Every Way



Made in Galt by the manufacturers of Teck Flush Valves, Perfecto Brass Goods and Vitro Tanks.

Our New Quick Opening Radiator Valve

SANITARY Engineers! Just look over the following description of this new valve that opens and closes at one twist.

Shoulders on each connection prevent pipe from interfering with the barrel.

Body is threaded on the OUTSIDE.

Bonnet tightens down on a fibre gasket insuring a tight connection.

Cushion packing nut which is easily repacked.

Made of best quality metal mixture.

Parts are machined to gauge and are interchangeable.

Broached handle with curved top that holds no dust.

Neat in appearance. Carries the same "Two-for-One" guarantee as the famous Perfecto Brass Goods.

GALT BRASS COMPANY, LIMITED

Galt, Ontario

Branch Offices:

TORONTO

MONTREAL

WINNIPEG

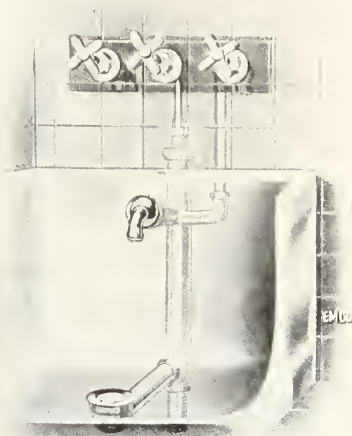
Sanitary Engineer

Plumber and Steamfitter of Canada

Vol. XVII

PUBLICATION OFFICE: TORONTO, OCTOBER 1, 1923

No. 19



The New EMCO Concealed Fixture for Tiled-in Baths

has valves of by-pass construction permitting connections from above or below, or allowing for shower connections if required. The handles and escutcheons are porcelain, the spout is of generous design, giving the exposed part of the fixture a handsome appearance. The EMCO concealed bath room fixture is very simple to install. There is enough adjustment in its construction to take care of ordinary variations in the thickness of wall.

See your jobber or write us regarding the
new "EMCO" concealed bathroom fitting.

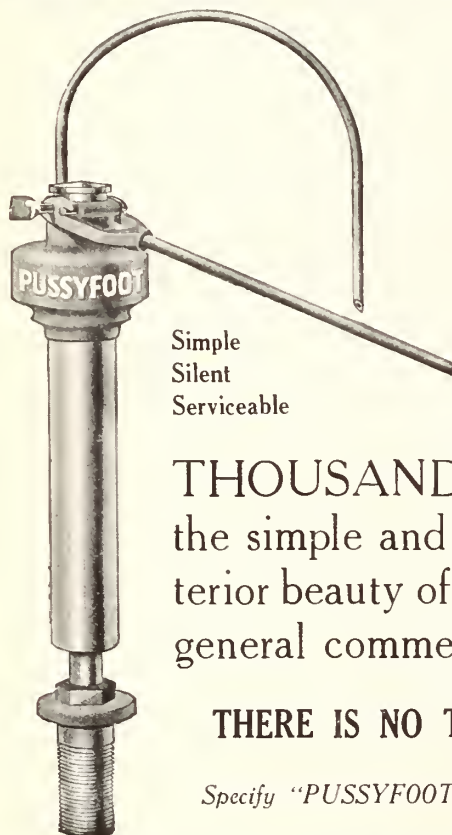
Empire Brass Mfg. Co., Limited

LONDON and TORONTO, CANADA



Our Exhibit of “PUSSYFOOT” Closet Tanks

at the Canadian National Exhibition was a centre of attraction and demonstrated their growing popularity.



THOUSANDS examined and admired the simple and silent valve, and the exterior beauty of the tank was a matter of general comment.

THERE IS NO TANK MADE EQUAL TO IT

Specify “PUSSYFOOT” to your jobber and insist on getting it.



THE CANADA METAL COMPANY

LIMITED

Montreal
Hamilton

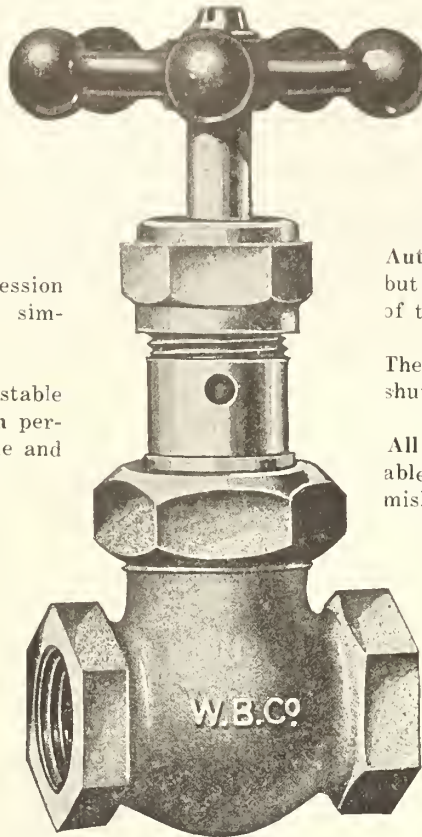
TORONTO

Winnipeg
Vancouver

Compression Stop and Waste

This special design Automatic Compression Stop and Waste is unequalled for simplicity, efficiency, and durability.

The Waste opening is in the adjustable hood which can be set in any position permitting Stop to waste from either side and at any angle.



No. 3483— $\frac{1}{2}$ and $\frac{3}{4}$ Sizes.

Automatic in action—no caps to remove—but wastes automatically with the closing of the Stop.

The waste does not begin until the stop is shut off.

All parts are standardized and interchangeable assuring ready repairs in event of mishap.

This easily operated Compression Stop and Waste is being very generally installed replacing the Ground Key style which becomes impractical in use owing to the keys setting tight.

For Quick Service Ask Your Jobber

THE

WALLACEBURG BRASS & IRON MFG. CO.

WALLACEBURG, ONT.

LIMITED

TORONTO OFFICE:

Mr. L. N. Vanstone, 10 Wellington St., E.
Telephone: Main 2355

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Your Own Salesmanship Is Not Enough

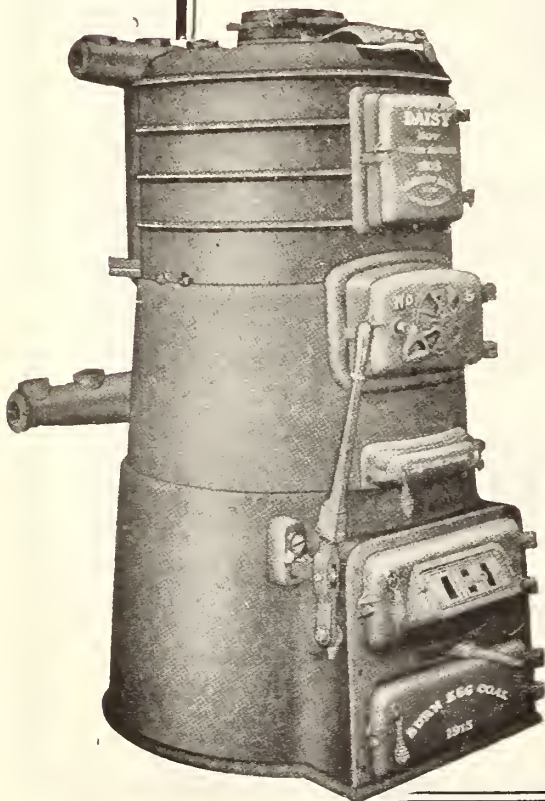
The testimony of satisfied owners—owners of boilers and radiators that you have installed, is necessary to the up-building of a successful heating business.

The average Canadian wants, and demands from his heating plant adequate heat—and wants it at a minimum of trouble and of fuel consumption.



Daisy Boilers and Viking Radiators always, unfailingly, give just this service; they build good will for the dealer; they enhance his reputation; they are his surest salesmen.

Fall Home-Builders are alive to the necessity for reliable heating systems. Estimates are being furnished and plans being made—now. Your golden opportunity is at hand to recommend, sell, and instal “Daisy Boilers” and “Viking Radiators.” We are ready to go over specifications with you.



WARDEN KING LIMITED

MONTREAL

Branch Office: 136 Simcoe St., Toronto



The Joys of a Built-in Bath-tub

HAVE you exploited fully the joys of a built-in bath-tub? Do you tell customers of its beauty of appearance? That it occupies less space? That it is more sanitary? That dirt cannot collect below or behind it.

The "Standard" built-in bath-tub is as big an advance in comfort over the four legged bath-tub, as the comfortable chesterfield is over the old horse-hair sofa.

Built in bath-tubs, pedestal lavatories, and other up-to-date plumbing fixtures are being exploited in a powerful and effective manner by the "Standard" advertising campaign now appearing in a select list of Canada's Magazines and newspapers.

Standard Sanitary Mfg. Co.
Limited

General Office and Factory: Royce and Lansdowne Aves., Toronto, Ont.

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Winnipeg Showrooms:
145 Market Street East.

Hamilton Store:
20-28 Jackson Street West

Montreal:
705 McGill Building.

Calgary:
354 Eleventh Ave. West.

"Made in Canada"

Vancouver:
860 Cambie Street.



Heating Features Every Householder Understands

With one eye on the coal bin and the other on the ever mounting price of coal, your prospect for a New King heating system wants to know two things:

First:—Will it give me adequate, even heating at all times?

Second:—Is it economical of fuel?

The answer to both questions is an emphatic YES.

The following features of design and construction assure the maximum of heating comfort at a minimum expenditure of fuel.

Perfect circulation guaranteed at all times by the TWO WAY NIPPLE construction. Fire pot made entirely independent of the first section. New King Smoke Control. Improved grate operation.

When you sell a New King Boiler you sell more than just a furnace; you sell years of cosy winter comfort and uninterrupted satisfaction.

Install IMPERIAL RADIATORS with a King Boiler—they look better, last longer and radiate the heat.

Catalogue for the asking.

IMPERIAL RADIATOR COMPANY, LIMITED

228 St. Helen's Ave.

Toronto, Ontario

Head Office and Works at St. Catharines

BRANCHES:

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MONTREAL—1 Oak Street,
S. T. Hadley, Manager.

HAMILTON—District Representative:
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Vancouver, B.C.

Canadian Fairbanks-Morse Co., Ltd.,
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J. H. Ashdown Hdwe. Co., Ltd.,
Calgary, Alta.

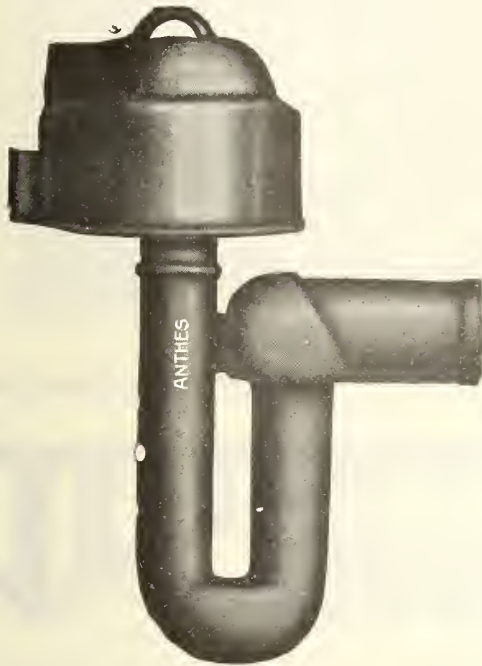
Carroll-Wilson, Limited,
Edmonton, Alta.

F. S. Coombs, 136-8 Lower Water
Street, Halifax, N.S.



The Croaking Chorus

—But it doesn't mean anything



*The Anthes Syphon
"The Heart of
the Disposal System"*

Rarely will you find a farmer who will admit he is making money; it was ever thus.

"Crops are poor"; "Prices are low"; "Times are hard"—so runs his plaint year in year out—but it doesn't mean anything.

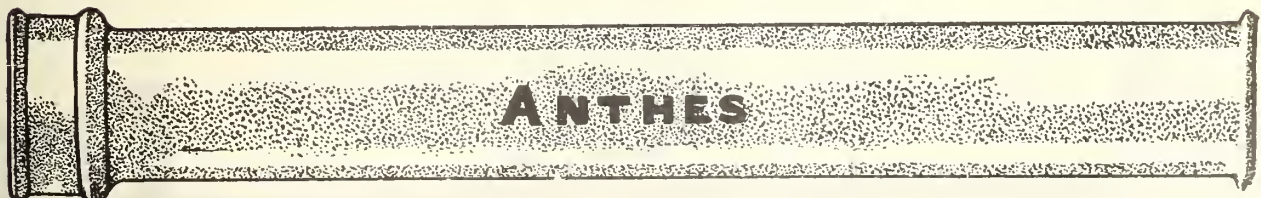
To-day the Canadian Farmer is sitting pretty. Despite vigorous denials he has money to spend to better his living conditions.

It is your privilege, Mr. Sanitary Engineer, to pry him loose from enough cash to pay for a complete indoor lavatory equipment.

He owes it to his women folk, to himself and to the community to banish the outdoor privy into the limbo of discarded, outworn things along with the rack, the thumbscrew, earmuffs, and red flannel underwear.

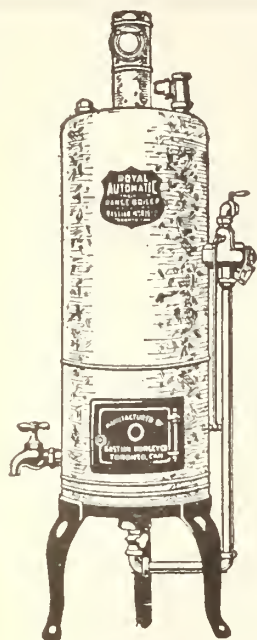
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Toronto and Winnipeg
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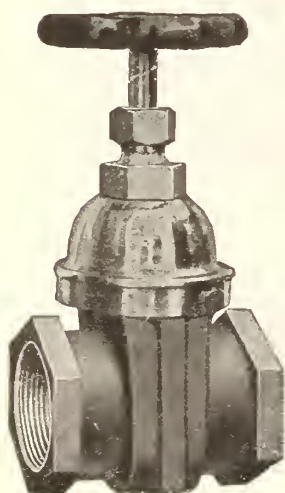
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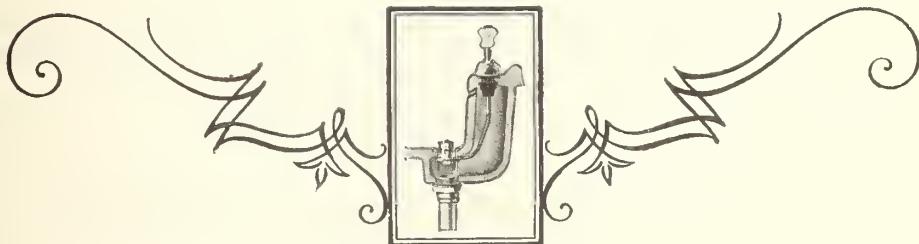
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SANITARY ENGINEER

PLUMBER AND STEAMFITTER OF CANADA

ESTABLISHED 1907

PUBLISHED TWICE MONTHLY

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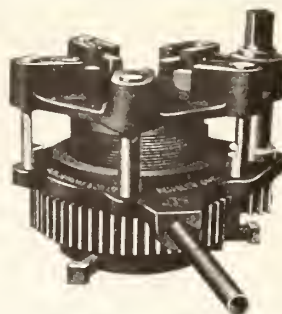
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Plumber and Steamfitter of Canada

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Vol. XVII

TORONTO, OCTOBER 1, 1923

No. 19

Jobbers' Cost Laid Bare Under the New Sales Tax Regulations

Unlicensed Jobbers Selling to Licensed Jobbers or Manufacturers Must Show Amount of Sales Tax Paid on Their Purchases at Six Per Cent.—Jobbers Take Advantage of Opportunity to Put in Stock by Dec. 31—Various Plans of Quoting Used by Manufacturers

WITH only a tentative outline of the new Sales Tax regulations to work on, manufacturers, wholesalers and plumbers throughout the country are giving much attention to the likely effect upon their branches of trade of the new basis on which the six per cent. tax will be applied after January 1, 1924. In some districts the trade have been gathering together to discuss the subject and make recommendations to Ottawa before the final regulations are framed; but in others the matter has received little attention and Sanitary Engineer has been requested to provide some details of the controversial points arising in the various discussions.

From a general review of the regulations it is evident that the new tax of 6 per cent., being an increase from the present $4\frac{1}{2}$ per cent. tax, is to be collected by the government at the source after January 1, 1924. The source means from licensed manufacturers or licensed jobbers. Practically every manufacturer will be licensed and be compelled to hand over to the government 6 per cent. on the invoice value of goods as sold for consumption. The 6 per cent. is not to be included in the cost on which sales tax is figured. Thus, if a bill of goods for sale to a wholesaler or retailer is invoiced at \$100, the total as it is received by the buyer will be \$106. Were the manufacturer to absorb the 6 per cent. in his cost he would charge 6 per cent. on \$106. Licensed jobbers on whose sales tax must also be returned to the government, include those jobbers who sell more than 50 per cent. of their total sales of goods to licensed manufacturers or producers, to be used in articles manufactured for sale.

No Tax on Raw Imports

After January 1 no sales tax will apply to a manufacturers' importation of raw material and a refund is to be granted of the $4\frac{1}{2}$ per cent. sales tax paid before that date on all material on hand on that date, notice being given in writing on December 1 and an inventory to be submitted with claim before June 30, 1924. No deduction to be allowed in respect of goods not accounted for prior to March 31, 1924.

Under the new regulations the Sales Tax will be collected entirely at the source and not split up into two stages of collection as at present. The tax will therefore be more concealed than at present, and judging from efforts being made by manufacturers to take care of the increased tax, it is thought unlikely that it will cause as much confusion among jobbers and retailers as has formerly existed.

In view of the apparently more favorable buying conditions existing prior to January 1, when the increased sales tax becomes effective, it is felt that there will be a tendency for wholesalers and retailers to stock up between now and the end of December.

Jobbers Are Stocking

Questioned on this point wholesalers in Toronto pointed out that they were already taking steps along this line in respect to certain goods. On lines where there was long dating, such for instance as spring goods which would ordinarily be placed in warehouse about February and paid for about next April on terms prevailing at time of delivery, steps were being taken to secure delivery in December so that terms prevailing in that month would apply and thus save $1\frac{1}{2}$ per cent. sales tax.

That this practice could not be followed out to advantage in all lines was pointed out, however, on account of the terms which some manufacturers have made already on booked orders. Some manufacturers have revised prices already and lists carry the advice "these prices include Sales Tax." This complies with the regulations, and it is the intention that these prices exist for immediate business as well as for after the turn of the year. Requests made by certain jobbers for reduction in these prices to compensate for the lower sales tax now existing compared with that to apply after January 1, have been met with the response that these prices include sales tax, and the manufacturer is not saying what or how much sales tax they include. There is no way of knowing whether the manufacturer is absorbing any or all of it. This plan is much more desirable, according to jobbers, for the tax is absolutely concealed, but in such cases there is no incentive to secure delivery before Dec. 31. As a matter of fact there is advantage in postponing buying of such goods until after January 1, as at present these jobbers are compelled to pay a $2\frac{1}{4}$ per cent. tax in addition, which will not apply after January 1.

Retailers May Do Likewise

On the lines being quoted in such a way that there is an advantage to jobbers in buying before that time, it is pointed out that retailers might also buy to advantage. Unless the sales tax is included in the price being quoted for present and future business there is an advantage of $1\frac{1}{2}$ per cent. which will accrue to the wholesaler or retailer who has the goods by December 31, compared with the one who has to

buy thereafter. On the point of whether this advantage will be taken or not, wholesalers were non-committal.

It was not thought that the tying up of manufacturers' money in sales tax paid on raw materials on hand January 1, until rebate can be secured, would be sufficiently serious to warrant much slackening off of buying of materials during the latter part of the year. This opinion was based on the fact that most industries are busy at that time of year working on spring orders and that the present policy of buying materials only for current requirements would hardly be altered in a firm market with the consequent danger of having to pay higher prices, merely for the advantage of having the use of funds representing sales tax on materials on hand on January 1 for a couple of months.

One of the most interesting points raised in discussion of the regulations was that dealing with the responsibilities of an unlicensed jobber selling to a licensed jobber or manufacturer. Under such conditions the unlicensed jobber who sells the goods is compelled to show on his invoice the amount of sales tax which was paid on the goods when he bought them from a manufacturer originally. This is in order that the licensed manufacturer who subsequently buys the goods will be able to make application for rebate of that amount (the article carrying sales tax when again passed on to the consumer by him). Under this plan it is at once apparent that the exact cost to the unlicensed jobber and his profit margin are disclosed to the buyer. This is information which it is not always desirable should be passed on and some jobbers are much incensed over it. It sometimes happens that an unlicensed jobber in a district may sell some merchandise to a local licensed jobber with whom he is in competition and under this plan his cost, and therefore profit margin, is quite apparent, because the sales tax is paid on the cost of the goods to that unlicensed jobber, and he must pass on a notice of the amount of that tax on the invoice.

Jobbers affected by this regulation are putting forward the claim that they should secure the rebate of that sales tax when they in turn sell a licensed manufacturer or jobber.

Generally speaking, wholesalers are of the opinion that the plan of including the sales tax in the price quoted by the manufacturer or licensed jobber, will be much better for wholesalers and retailers. One wholesaler cites the fact that last year he was forced to pay \$12,000 out of the firm's profits for sales tax, which it was impossible to collect under the existing regulations. It is known that many manufacturers have been faced with the same problem. It is the opinion that on goods carrying established resale prices there will be more of a tendency for manufacturers to take care of some part of the sales tax in their quotations to the trade. The mar-

(Continued on page 17)

Outstanding Points of Sales Tax Discussions

1. Steps being taken by jobbers to stock up by Dec. 31 and to secure delivery of goods by that time which carry spring dating where goods do not carry a price which already includes sales tax.
2. In some cases manufacturers are already quoting prices which include sales tax and are effective now and after January 1. Buying is being curtailed on such lines now because jobbers have to pay the existing $2\frac{1}{4}$ per cent. tax which will be eliminated after January 1.
3. There will accrue to the wholesaler or plumbers with goods on hand on January 1 the advantage of $1\frac{1}{2}$ per cent. sales tax, being the difference between the present $4\frac{1}{2}$ and the new 6 per cent. tax. Whether this advantage will be taken by jobbers in sales to plumbers is questionable.
4. Manufacturers cannot get rebate for tax paid on materials on hand on January 1 for probably a month or two, but it is not thought that this tying up of capital will be serious enough to warrant any curtailment of raw material buying in December.
5. An unlicensed jobber selling to a licensed jobber or manufacturer has to show on his invoice the amount of sales tax he paid when he bought the goods. At 6 per cent. it is then simple for the buyer to figure that jobber's costs. These jobbers want to secure this rebate themselves and not give away this information.
6. It is thought much confusion will be eliminated and loss from necessary absorption of sales tax curtailed under the new regulations. Manufacturers of lines carrying established resale prices are said to have shown more inclination to make some allowance in discounts for the sales tax.
7. Some manufacturers object to concealment of tax in price quoted on ground that two prices would be necessary in selling to licensed or unlicensed jobbers respectively.

Manufacturer Shows Why Tax Concealment Would be Unsatisfactory

Claims Two Sets of Prices Necessary in Selling to Licensed and Unlicensed Wholesalers Would Cause Confusion and Dissatisfaction—Long Standing Lists and Discounts Would be Upset

DISCUSSING the proposal made by certain wholesale interests that manufacturers should conceal in their selling prices the new six per cent. sales tax, to come into effect on January 1, George Spence, sales manager of The Steel Co. of Canada, Ltd., Hamilton, Ont., stated to Sanitary Engineer, that from present indications this firm would continue to follow the policy which has been adhered to under the existing sales tax, viz., handling the sales tax as a separate item. Apart from the question of it facilitating matters to merely extend the present plan to cope with the six per cent. tax, and eliminating any necessity of interfering with existing lists and discounts on the various products manufactured, there are some other important considerations involved.

It was pointed out that were the firm to adjust prices so as to include the sales tax, that two sets of prices would be necessary in selling to wholesalers accordingly as they are licensed or unlicensed. Reference to the official copy of the Act concerning the new Sales Tax indicated that where a manufacturer sells to an unlicensed wholesaler that the tax is collected on that transaction, but in selling to a licensed wholesaler no sales tax applies until the merchandise passes on from the wholesaler. Thus it is quite evident a price including

the sales tax in one case would not do in the other case, and it is held much confusion would result, especially where long standing lists and discounts are in effect.

The fact that the tax is to be paid by the consumer and that pyramiding is largely eliminated under prevailing conditions, was thought to be sufficient indication that the tax can be taken care of without working any hardship on any branch of trade, by following out the present plan. With the idea of following this policy after January 1, orders being taken now for delivery after that date are being taken "subject to buyers' account," the increased sales tax to apply providing the regulations as finally drafted do not include any drastic changes.

Concerning the question of manufacturers hesitating to purchase stocks of raw material before January 1, so as not to have money tied up in sales tax for a couple of months before rebate is available, Mr. Spence stated that his company would probably take advantage of this situation to some extent, but that in their case this could not be done on a very large scale because the ore and coal which is largely handled during the shipping season is already in hand in sufficient quantity to last for some time.

Gasoline Stations Equipped With Sanitary Accommodation for Patrons

Question of Adoption of International Comfort Station Mark is Brought up in Toronto—American Stations Display Sign and Find Business is Increased as Consequence

THERE is a growing tendency on the part of municipalities all over the country to compel owners of gasoline filling and service stations to provide certain sanitary accommodations for their patrons, a movement that has taken root in the city of Toronto to an extent not yet fully realized by the average citizen.

Under civic regulations, no service station can be erected in the city at a cost less than \$10,000, and, according to the plans, approved by the city architect, must contain two water closets, one for the use of male patrons and one for female patrons.

Through an oversight in the preparation of the regulations, however, no provision was made at the time of their origin for the showing by the service station that such accommodation was to be found on their premises. Consequently, though all stations erected during the past two years are thus equipped, very few of them make the fact known to the public and as a result the existence of the sanitary accommodations has remained more or less of a dark secret and has been of no service to the motorists for whom the accommodation was originally intended.

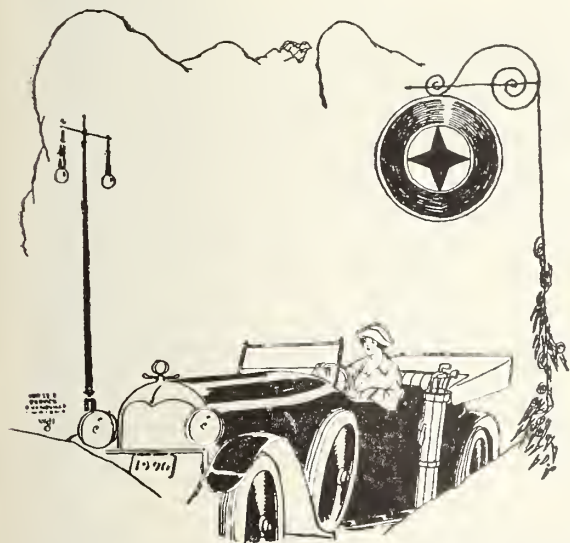
It is claimed by the service station proprietors that were they to put up signs, indicating the presence of lavatories, the public would take that as a sign that the accommodation had been placed there for general use, making the maintenance of the services considerably higher than were the use confined to patrons of the stations as was the intent of the regulation. The service station proprietors do not feel that they should be called upon to provide accommodation for the general public at their own expense any more than the proprietors of any other business places.

However, the regulations stand, and to make them of some value by the achieving of the object originally intended, the civic authorities are again taking up the matter and it is expected that a ruling will be handed down shortly as to the placing of signs at the stations, indicating the presence of the sanitary accommodations.

It has been suggested that the city adopt the International Comfort Station mark, already so familiar to travellers in the United States. This mark consists a circle board of piece of metal on which an outer circle is painted in olive green and the inner circle white. On this inner circle is a four-pointed star of lemon yellow outlined in green, the whole presenting the appearance indicated in an accompanying illustration.

This mark is now attaining wide usage in the United States and its adoption in Canada, particularly in Toronto and those other parts where the American tourist traffic is heavy each summer, would serve a two-fold purpose. In the first place, the objection raised by the proprietors would be minimized. The mark bears no wording whatever, thus eliminating the idea of a public accommodation and is still a mark that would soon become familiar with motorists and result in a real benefit to the stations showing it. In the second place, its use would tend towards standardization and would prove as informative to visiting tourists as to resident patrons.

Whether this will be adopted in Toronto or not, has not been decided as yet. It may be that service station proprietors will be obliged to put up small notices. The International mark, however, is superior from every point of view and there is little doubt but what its adoption would be welcomed by all concerned.



Filling stations are more profitable when they display a public comfort station sign. The sign signals the traveler to stop and enjoy the use and comfort of modern, sanitary plumbing facilities. Once stopped, what more natural than to buy some "gas"!

Public comfort station equipment is a profitable investment in building good-will—quickly pays for itself in increased, friendly patronage.

Says Women Are Increasingly Important Buyers of Plumbing Supplies

Overcoming the Woman's Instinctive Dread of Dirty Plumbing Shops, the Modern Sanitary Engineer Must Have a Spotless Showroom With Clean, Attractive Goods on Display—The Home Owner Who Buys One Piece of Equipment at a Time

WINDOW displays put in at regular intervals and made as attractive as possible have been a most important factor in making the heating and plumbing department one of the most important sections of the store of H. Knell at Kitchener, Ont. Mr. Knell makes a special point of always including a generous showing of bathroom fixtures in every plumbing window that is dressed. There are two reasons for this, he says. One is that bathroom fixtures carry an unusually wide appeal. The other is, that the majority of the lines are so attractive, and so well finished, that they naturally enhance the display value of other lines of plumbing goods, and not only sell themselves, but help to sell other merchandise.

His Best Advertisement

"I am not exaggerating one bit when I say that our display windows are our very best advertising force," said Mr. Knell. "A window display of bathroom fixtures and plumbing goods brings immediate and very satisfactory results. The display besides producing immediate sales brings in many inquiries which later develop into good business."

Just here it might be mentioned that Kitchener is a factory city, having more factories per capita than any other city

in the Dominion. It stands third in the percentage of homes owned, approximately 80 per cent. of the men employed owning their own homes. Few cities have such a large percentage of really comfortable, well-built homes. A great many of the workers, with the thrift that is characteristic of the city, build a home and then proceed to instal modern heating and plumbing as they can afford it. This means that there is a constant demand for various lines of heating and plumbing goods, and by constantly keeping before the population these lines of merchandise Mr. Knell is enabled to cash in on some splendid and profitable business. He also in addition attracts his share of the business that comes from those building new homes where complete installations are required.

People Like It

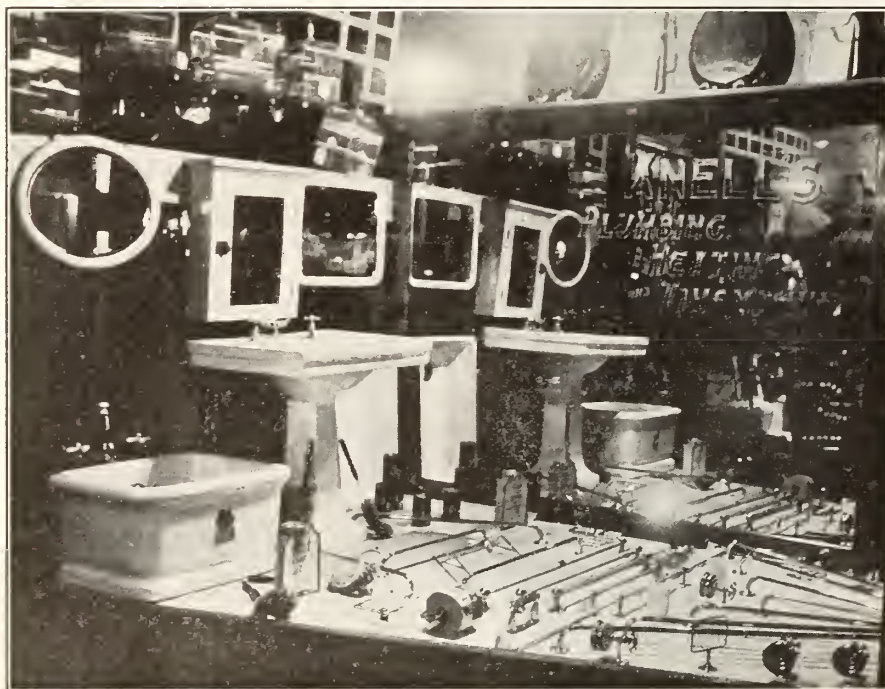
"One cannot keep too much merchandise out where the buying public can see it," said Mr. Knell. "Every home owner is interested in anything that will make his home better or that will add to his comfort and convenience. I find that in a great many cases women make the first suggestions for improvements in the home. They interest their husbands and then both come down to look over our stock and decide what will be put in.

It is a decided advantage to be able to show them the various pieces set up and looking as they will when installed. Displays of this kind go a long way toward closing sales, and they have a very distinct value also in helping to keep the store and its windows interesting and attractive."

Kept Well Lighted

Mr. Knell aims to keep his windows working for him 16 hours a day. By keeping them well lighted until 10 o'clock at nights he interests scores of prospects who are down town attending the theatres or on other errands, and secures many inquiries. As stated above he gives his windows and displays the most careful attention. The windows, the window floor, and every article shown, is kept in spotless condition and looking its best. This, Mr. Knell regards as essential, and especially so in any business where women want to visit the store and make a selection of the merchandise they are buying. Women, he believes, will not visit any shop or inspect merchandise that is badly kept, much less purchase. He believes that in keeping his entire stock, not only of hardware, but of plumbing goods, in spick and span condition, he is going a long way to speed

An effective window of a wide range of plumbing equipment, including small bathroom accessories, is shown here as used by H. Knell, Kitchener, Ont. Such window displays are said to be the best advertising medium found in this store and every window display brings immediate and satisfactory results.



turnover and build a good reputation for himself and store.

"Home owners who have visited my shop," he said, "never hesitate about coming back again or sending their friends. Many might consider this an unimportant matter, but I believe it is a really big factor in building sales. Many women have an instinctive dread about going into plumbing shops, fearing that they will have to look at merchandise which is all over dust and dirt, and that they will get covered with grime themselves. It is important to the trade that this prejudice should be dispelled, and the only way to dispel it is to keep one's stock in A 1 condition. It is good for

the merchant also and keeps merchandise moving."

Mr. Knell has had good results from the use of bill board advertising. Special large signs, erected by him in conspicuous locations, have brought in business. On them he features the firm name and location and various lines of plumbing and heating goods.

Mr. Knell declares that experience has proved to him that there is an all-year need for plumbing and heating equipment, and that by going after it aggressively one can get very satisfactory and profitable business. Bathroom fixtures he finds are constant sellers, many home owners buying one piece at a time until they have a complete set.

full knowledge and consent of all interested parties.

8—He will not use unfair means to win professional advancement or to injure the chances of another engineer to secure and hold employment.

9—He will co-operate in upbuilding the engineering profession by exchanging general information and experience with his fellow engineers and students of engineering and also by contributing to work of engineering societies, schools of applied science and the technical press.

10—He will interest himself in the public welfare in behalf of which he will be ready to apply his special knowledge, skill and training for the use and benefit of mankind.

Code of Ethics for Engineers Adopted by American Society

Annual Guidebook Outlines Guiding Code for Maintenance of the Dignity of the Profession—Well Worth Consideration of all Engaged in Engineering Work

THE American Society of Heating and Ventilating Engineers, in their 1923 guidebook, have included a "Code of Ethics for Engineers," the text of which is well worth reading and considering.

Engineering work has become an increasingly important factor in the progress of civilization and in the welfare of the community. The engineering profession is held responsible for the planning, construction and operation of such work, and is entitled to the position and authority which will enable it to discharge this responsibility and to render effective service to humanity.

That the dignity of their chosen profession may be maintained, it is the duty of all engineers to conduct themselves according to the principles of the following code of ethics:

1—The engineer will carry on his professional work in a spirit of fairness to employees and contractors, fidelity to clients and employers, loyalty to his country and devotion to high ideals of courtesy and personal honor.

2—He will refrain from associating himself with or allowing the use of his name by an enterprise of questionable character.

3—He will advertise only in a dignified manner, being careful to avoid misleading statements.

4—He will regard as confidential any information obtained by him as to the business affairs and technical methods or processes of a client or employer.

5—He will inform a client or employer of any business connections, interests or affiliations which might influence his judgment or impair the disinterested quality of his services.

6—He will refrain from using any improper or questionable methods of soliciting professional work and will decline to pay or to accept commissions for securing such work.

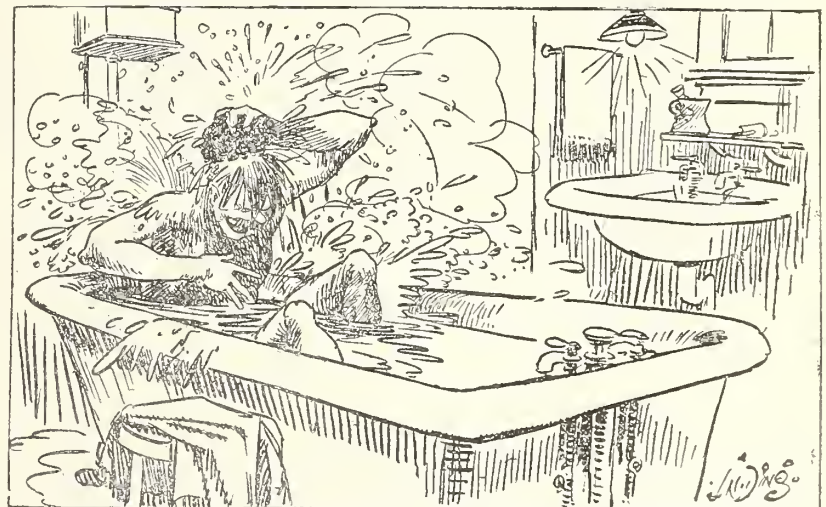
7—He will accept compensation, financial or otherwise, for a particular service, from one source only, except with the

GAS HEATING CHEAPER

Edmonton, Alta.—With the increase in the use of gas, for heating purposes, it has been pointed out to the civic authorities by the gas company that the civic block could be heated with gas at a cost which would be \$469 less per year than heating by coal. The figures are being checked and the proposed change investigated.



THE LUXURIES OF A GENERATION AGO WHICH WERE ONLY FOR THE BANKER WHO LIVED ON THE HILL—



ARE BENEATH THE CONTEMPT OF THE AVERAGE WAGE EARNER OF TO-DAY.

How the Sales of Furnaces Can Be Boosted During the Autumn Months

Stressing the Idea of Selling Heating Systems Preferable to Selling Furnaces—Convince Customer of Value of Service Rendered in Installation Work—Economy in Use of Fuel Another Strong Sales Argument

THERE is every indication that the furnace business this fall is going to outstrip by far that of the past two or three years. Representative dealers throughout the country are reporting a volume of business available that is highly gratifying to the trade at large and are already making heavy inroads into it. This being the case, it is up to every progressive dealer to make sure of his share of the increase.

One of the big problems that he is bound to have to contend with is the fact that many house-owners think of the purchase of a furnace too much from the price basis and give scant regard to

the service to be obtained. Of course, there are those people with whom quality and satisfactory service mean little—speculative builders who have as their main object the construction of houses on as cheap a plan as possible—but the average man is open to the sort of sales arguments that emphasize the value of a furnace that will last many years without important replacements, and to the necessity for the sort of installation that will ensure sufficient heat in the coldest weather.

It is, then, up to the dealer to give prominence to such sales arguments, both in actual conversation with his

prospects and in his advertising. Advertising often goes a long way in preparing the prospect. People must be shown how they can better their condition, raise their standard of living and add to their comfort before they will condescend to part with a large sum of money on a furnace.

A well-worded advertisement used recently by one merchant dealt with the subject of health and ventilation in a manner that could not but help greatly in paving the way for the salesman. Under the heading "Fresh Air Essential to Healthful Heating" the copy ran:

(Continued on page 21)

JEWEL
PIPELESS FURNACE
Made in Three Sizes
The Most Efficient and Economical Heating Appliance for the Home
As dealers familiar with all lines of furnaces, we take special pride in handling the JEWEL PIPELESS FURNACE, made by the well-known Burrow, Stewart & Milne Co., of Hamilton.
The Jewel Pipeless Furnace provides the most scientific, safe, perfect system of heating yet devised. It takes less than a day to install, and will heat your house thoroughly and economically. Elimination of heat pipes keeps the heat in the house and the house cool and the house water, and runs your coal bill in half.
Come in and let us tell you more about it. We also handle the Jewel Pipeless Furnace which is made in live size.
SOLD AND INSTALLED BY
JONES PLUMBING COMPANY
757 Windsor Ave. Telephone 2147.

THE PLUMBING AND HEATING
of your new home
This is a subject demanding more than a little thought and consideration. The best of service and the most workmanlike manner and the lowest possible price are the three essentials of every good plumbing and heating job.
Our advice and assistance we can render in all your decisions in making a decision.
ERSKINE, SMITH & CO.
"Our Hobby is Good Work Only"
21 NICHOLAS STREET PHONE 8 4771

When the Cold and Stormy Weather Comes
Will Your Home be Sufficiently Warm?
To insure proper heating for the winter it is usually best to call in an expert to look over your heating system. It is often possible for him to save you money by changing the system for you—thereby saving fuel costs—after your own needs and require any
Edwards Plumbing Co.
If you are in the hardware article we will supply you
214 Church St. Phone 119.

COAL MAY BE SCARCE THIS WINTER
But It Will Fill Up Your Coal Bin Considerably If You Get Up Your Heating System in First-Class Condition
We can supply repairs for any furnace, whether steam, hot water or hot air; also galvanized and black smoke pipes of any size or weight, furnace hot water coils, range boilers, etc.
Let us attend to this work NOW, while we are in a position to give you prompt attention. Then you will have your furnace ready for the cool evenings.
No matter what you need in this line, we have a reputation for first-class work and our prices are very moderate. Let us give you an estimate on your job.
PLUMBING
This is one of our specialties. We have a reputation for first-class work and our prices are very moderate. Let us give you an estimate on your job.
PIPE FITTING
No matter if it is a leaky radiator or a complete steam or hot water installation, see us first, as we may be able to save you money.
REPAIR WORK
We are always at your call for any repair work. The next job you have, give us a trial. We will send you a mechanic qualified to do the line of work you have to do.
DUFTON & SAUNDERS
PHONE 1237 44 MI. BOST.
PLUMBING AND HEATING
SOLE AGENTS FOR THE "BANNER PIPE AND PIPELESS WARM AIR FURNACES"

The bathroom, once placed in the least desirable space in the home, now occupies the most important position in your new bathroom is worthy of all the study and personal attention you can give it.
Let Us Fit Up Yours For You—Payments Can Be Arranged
PADDON COMPANY
LIMITED
PLUMBING—HEATING—SHEET METAL WORK
PHONE 110 423 PITT ST. E.
116 111 11

"RELIANCE" Your Heating Appliance IN THE IMPORTANT QUESTION NOW.
The Best Makes of Hot Water Boilers always IN STOCK READY for installation.
LONGGARDS, Limited
Heating and Consulting Engineers, Mechanical Plumbers, etc.
215-221 Hollis Street, HALIFAX.
HOT WATER BOILER.
BURNS ANY SORT OF FUEL.

Are You Prepared?
Winter is just around the corner, and unless you have an adequate heating system you and your family will be obliged to endure the many discomforts of a cold house. A "GOOD CHIEF" furnace in your house will solve this problem. Our advice and expert assistance is at your disposal.
COLLUM & SWEET
PLUMBING AND HEATING
100 QUEEN ST. PHONE 56

Our Plumbing is Guaranteed
It doesn't pay to have unreliable plumbing installed in the house. You are in constant worry of defects. At no more cost than ordinary work you can have guaranteed plumbing in your home. Call or phone.
O. J. MUNTZ
Agent for GILSON PLUMBING AND HEATING CONTRACTOR
506 DUNDAS ST.
Agent for Scard's Paints and Varnishes.
PHONE 801W

At this season of the year, when the selling and installing of heating equipment is occupying the attention of the trade so extensively, it is interesting to note what may be done in the way of boosting business by the use of advertising. The accompanying ads. illustrate what has been done along this line by some progressive Canadian tradesmen.

Tinsmithing and Sheet Metal Work

Patterns for a Tank Charger

Written for Sanitary Engineer by O. W. Kothe, Principal St. Louis Technical Institute.

THESE tank charger working drawings were submitted for solution. A direct tracing of the drawings were made, so measurements are omitted in our drawing, although measurements can be filled in of any size as long as this method of development is used; the patterns should come out all right.

As working drawings, we only need the side elevation and a half plan. Arcs are described in plan to suit measurements. Owing to the roll all around the bottom, the corners will have to be bumped into a spherical shape, and hence will require a little trimming afterwards.

Observe our plan gives spread or flare, while the elevation gives altitude between points. So divide the quarter turns of back end in equal spaces as 3-9 and 4-10, joining the points with triangular lines.

Next divide the hopper arc 1-4 in equal parts, and drop lines into elevation as 1'-2'-3'-4'.

From these points we square out the true section C, making lines 1'-; 2'-2"; 3'-3"; 4'-4" equal in length to those in plan as 4-4', 3-3', 2-2'.

This enables tracing the outline of section C, and is the girth length along the round end of hopper.

In determining the true lengths of triangular lines, observe the back end we treat the quarter circle, and add the flat part of the bottom extra. The cut is made in the pattern as shown; that is when seams must be made as the drawings show.

Then for the front at A, the hopper is treated as a transition, while the roll is worked in by cutting the pattern as at A and B in pattern.

So let H-T be the altitudinal line, and from each point in section C as 1'-2'-3'-4' square over lines to cross H-T.

With dividers pick the plan lines as A-1; A-2; A-3; A-4; A-5; 4-5 from plan, and set them to the right of point T as shown.

Pick the rise 5-4 from line H-T, and set as T-h, and then h-5"; 4-4; 3-3, etc., are true lengths for the hopper.

The true lengths for the back end are picked and set off on the left of line H-T in points as shown, and when lines are joined with proper points—you have all true lengths necessary to set out the patterns.

The patterns are set out the same as all triangulation problems and so further comment is hardly needed.

JOBBER'S COST LAID BARE

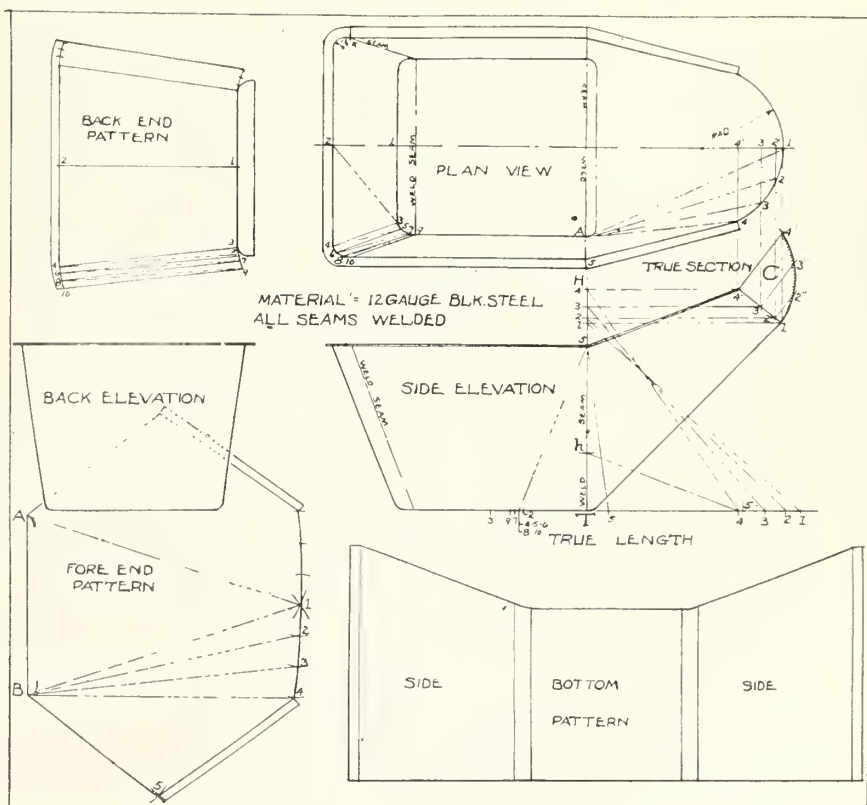
(Continued from page 12)

gin of profit on some of such lines was said to be already small enough without the manufacturer forcing the jobber or retailer to absorb the sales tax between them in order to leave the price to the consumer unaltered. A tendency in this direction was already reported by one wholesaler, a manufacturer of a line of goods carrying an established resale price having adjusted discounts so as to provide for absorbing some of the tax. It was felt that this would be done in cases where the tax really amounted to a considerable sum, but where it was a small item it was the feeling that retailers might make some adjustment of resale prices without any danger.

Concerning the policy of placing the sales tax on the invoice as a separate item, which certain manufactures state they will adhere to after January 1, the opinion of some wholesalers was that confusion would be prolonged by this plan; that there would continue a very mixed policy of taking care of the tax and that the advantages of a concealed tax would be lost.

Steady Improvement Noted in English Metal Market

LONDON, ENG.—Although the recovery in the iron and steel trades is less sensational than has been stated in some quarters, the improvement in demand is undoubtedly more widespread. Pig iron makers still hold large stocks, but business is now sufficient to absorb current production, while the revival of forward business is especially encouraging. It is expected that Japanese orders for iron and steel will be slow to materialize but other overseas orders are accumulating, including large orders from Brazil, Colombia and India.



Good Health and Heating Plant "Ads"

(Suggestions by courtesy National Trade Extension Bureau)

What Price for Health?

How great a value do you set on your health?

The only way to properly protect your health is to live under sanitary conditions. Out-door privies and unsanitary, old-fashioned water closets are dangerous to health.

A modern, sanitary water closet not only aids in protecting health, but greatly increases your comfort and pride in your home.

See us about them.

Your Name Here

Phone Number Address

Here's Something Worth While



Next winter, when the mercury in the thermometer is shrinking like a wool shirt in a steam laundry, and the wind is "whooping it up" outside at a sixty-mile gait, it will be mighty nice in your house if it's cosy and warm in every corner.

Your peace of mind will be sadly spoiled, however, if your heating arrangements eat up your coal pile like a hungry mule eats hay. Attend to it now, economically and comfortably, before Jack Frost sends everybody running for service.

Your Name Here

Phone Number

Address

Taking a Chance On Health!

That's what you do when you tolerate out-door privies, open vaults and drains.

Be alarmed whenever you see one of these disease-spreading menaces. They are especially dangerous in summer when flies breed and carry germs.

This is Good Health Week. Let us help you make your home safely sanitary.

Your Name Here

Phone Number Address

Sales Letters for Owners of Stores, Theatres and Garages in Connection With Good Health Week

Emphasis Placed on the Safety to Health That is Found in Adequate Sanitary Facilities—Economy of Good Equipment Also Stressed—Letters Cover Entire Available Field

(Garages and Filling Stations.)

FIRM LETTERHEAD

Date.....

Dear Mr. (or Mrs.):

You are courteous and considerate of customers—you give them prompt service. You are careful to create an impression of square dealing.

You do all this because your judgment tells you it is the profitable thing to do. But, the motoring public has learned to expect another service that you cannot afford to ignore. That is, providing modern comfort station facilities.

People will drive extra miles to reach such conveniences—and buy where they find them. There's not much room to advertise just gas, oil or repairs, profitably; but you can bring the folks to your runway by advertising a clean, inviting, well-ventilated toilet and rest room.

The individual farm or suburban water system makes it possible to have a sanitary comfort station anywhere there's a stream or a well, or even a rain water cistern.

We will be glad to show you how economically your comfort station may be installed and operated—made almost self-sustaining with coin operated locks and vending machines.

Yours for greater profits,
Your signature,

Name

Address

City

(Letter to owners of stores, theatres, etc.)

FIRM LETTERHEAD

Date.....

Dear Mr. (or Mrs.):

Why do the most desirable patrons go most to certain theatres, garages, restaurants, etc.?

Other things being equal, it's because of superior consideration for their comfort and convenience that they find at those places.

When you go abroad from your own premises, what do you find that you appreciate more than wash room and toilet facilities that are clean, inviting, sanitary and well ventilated? Surely, your own patrons will react the same way to the same things.

Modern comfort service in hotels, stores, theatres; all public and semi-public places; influences people favorably. The public has a right to expect that those who solicit public patronage should provide adequate sanitary facilities.

During National "Good Health Week" October 21st to 27th, much attention will be directed to such things. Let us help you to economically make such improvements.

Yours for better sanitation,
Your signature,

Name

Address

City

(Letter on general sanitation)

FIRM LETTERHEAD

Date.....

Dear Mr. (or Mrs.):

If this letter can tell you how to protect your health, it's worth reading, isn't it?

Entire communities have been stricken with disease because of obsolete or total lack of means of sanitation in some home, factory, store or other building.

The week of October 21st to 27th has been set aside as National Good Health Week. Civic bodies, sanitation leagues, plumbing dealers and heating contractors will strive to make everybody realize the need for modern sanitation, ventilation and hygiene.

No home is safe, no building is fit to work in; and no public place has the right to solicit patronage unless completely equipped with modern plumbing, heating and ventilation.

We will be glad to offer suggestions, and show how economical such equipment really is. Let us help you with the improvement of your property.

Yours for better living,
Your signature,

Name

Address

City

The Two "Better Relations With the Public" Windows

WINDOW display 105 will effectively stimulate demand for modern, sanitary plumbing; and, at the same time, promote better relations with the public. It points the lesson that the plumbing dealer or heating contractor renders a service that is praiseworthy as well as necessary.

The first step is to drape the entire back ground and side walls with light colored soft cloth. Gray ramie cloth will do nicely. The cloth should be gathered in folds and allowed to drape itself naturally.

The window show here is just about 4 feet deep from glass to background.

Next, built a false floor over the entire bottom of the window, about 3 feet above the side walk outside.

Out of wall board or light lumber, sawed to shape, build an archway and walls as shown in the picture. The archway should be in the centre of your window about 2 feet six inches from the front, with two walls running diagonally from the sides of the arch to the front corners of your window. Out of similar material, saw the profile of a good looking little house; and set this about one foot back of the arch, so that it appears clearly in view through the archway. All these, of course, should be appropriately painted in water colors.

Make a roadway with sand, leading through the arch as indicated by the pic-

ture. Cover the rest of the floor of your window, wherever in view, with window decorator's grass, real sod, or with excelsior broken up small and dyed green.

Use small twigs of shrubbery or evergreen, to reproduce the effect of shrubbery and trees as shown in the photograph. Be sure to get a few spots of this in front of the walls; and paste a few sprigs of some small vine on the walls in the manner shown by the photograph.

Place a big sign across the raised front of the false floor, bearing the legend shown in the picture. Add the lettering over the archway, and the three miniature signs, shown in the picture, and you will have a very effective display.

Be sure to use the three little signs shown in the picture, one on the house, and two as posters, one on each wall. They are an important part of this display. The one on the house should read "Modern Plumbing (& Heating)," with your own name and address as a signature. The two on the walls should show your name and address followed by the legend, in one case "Modern Heating—Steam—Hot Water—Vapor;" the other should read "Modern Sanitary Plumbing."

Show window 106 provides the heating contractor with a truly effective display. It cannot help attracting the interested attention of the passer-by, to

the fact that "Heat by Radiators" offers more advantages of comfort, economy, and convenience, than any other method.

The first step is to drape the entire background of your window with soft light-colored cloth, allowing it to fall into natural folds. Cloth used in our window is gray ramie cloth.

Then, with wallboard or light lumber, build a false background for your display, tinting it attractively and cutting an archway in the centre. This archway should be proportioned to the size of the radiator you intend to use. Place this false background close against the rear of your window, with the drapery showing through the archway. Immediately in front of this place a box, or some other pedestal for your radiator, about 6 in. to 8 in. high. Place this slightly diagonal to the rear line of your window, and cover it with drapery of some agreeable contrasting color. This drapery in our window is tan ramie cloth. On this pedestal place your radiator, showing it fully equipped with valves, etc., as if actually in service.

In front of this, on the floor of your window, place a rug of appropriate size. Also place a floor lamp and a good looking chair in position as indicated by the photograph. You should have no difficulty in borrowing all of these articles from the furniture store.

(Continued on page 25)



Heating and Ventilating Department

Results of Tests of Radiator Traps

Performance Data on Nineteen Radiator Traps Covering Venting of Air, Drainage of Water, Trapping of Steam, and Freedom From Noise

AN IMPORTANT work has been done during the past year by the Committee on Research of the National Association of Building Owners and Managers in testing radiator traps. No less than nineteen well-known makes were selected and subjected to a comprehensive series of laboratory tests. It is proposed to follow these up with reports on experiences in building operation covering the points of freedom from fouling and maintenance.

The full test figures and data are contained in a preliminary report published by the association. In addition to the tests themselves, the report takes up in an interesting way the principles of heat, the various types of heating systems and boilers, together with a general discussion of the functions and classifications of radiator traps.

As the report states, a complete and adequate system of tests would measure each trap in respect to its performance of all of its duties, including:

- (a) Venting of air.
- (b) Drainage of water.
- (c) Trapping of steam.
- (d) Performance under service conditions.
- (e) Freedom from noise.
- (f) Freedom from fouling.
- (g) Maintenance.

Unfortunately, no single system can measure performance in all of these duties. The only way, it is pointed out, to obtain complete results lies in combining a system of laboratory testing with a system of reporting building experience (the experience of managers of buildings in the actual use of the traps with which their buildings are equipped).

Advantages and Disadvantages of Laboratory Testing

The system of testing which the Committee on Research worked out for laboratory use covers the first five of the seven enumerated duties of the trap. Laboratory testing, it is added, so far as these five trap duties go, produces results of a considerable degree of accuracy and, so far as different kinds of traps go, a considerable degree of fairness.

The advantage of laboratory testing, as far as it goes, lies in the exact sci-

tific methods used and results recorded. The disadvantage lies in the limited ground covered.

Value of Building Experience

The value of data based on extended service in buildings is emphasized in the report by the statement that it is upon building experience (the experience of managers of buildings in the actual use of the traps with which their buildings are equipped) expressed in the form of questionnaires, that we must rely for testing the two remaining duties of the trap:

- (f) Freedom from fouling.
- (g) Maintenance.

The advantage of building experience lies, of course, in the broad ground covered. It is proposed to make hundreds, even thousands, of observations of the traps of a single make. The performance will, in most cases, cover a period of years—instead of hours. Every variety of service conditions will be covered. On the other hand, the disadvantage of building experience, as the committee recognizes, lies in the absence of exact, scientific methods, and the entrance of the human element with its capacity for error. Observations will, in most cases, be opinions, rather than test and measurement; recording, in most cases, will be in generalities rather than in figures.

The accompanying diagram (Fig. 1) indicates merely the general construction of a trap-testing apparatus.

The steam enters the trap through the inlet valve. At the opposite end of the radiator is installed the trap to be tested. The water of condensation, drained by the trap, flows directly downward into Pot A. Any steam that may be passed by the trap rises up into the condenser, where it is cooled and condensed to water, and flows into Pot B.

Condensation Ratio

Pots A and B are emptied from time to time, the water from each being carefully measured. The proportion of the contents of Pot B to the contents of both pots is obviously the percentage of steam passed and not trapped. Taken the other way around, the proportion of the contents of Pot A to the contents of both pots is obviously the percentage of steam entirely condensed in the radiator; it is the percentage of steam-trapping efficiency of the trap in operation.

Temperature Ratio

As to water-draining efficiency, this is tested by thermometers T_0 attached to the outside of the radiator at different points. These indicate by their temperatures whether inside the radiator at these points there is (hot) uncondensed steam, or (cooler) water of condensation. These temperatures by their proportions indicate the water draining efficiency of the trap in question.

Air-venting efficiency is considered indicated by the same thermometer and

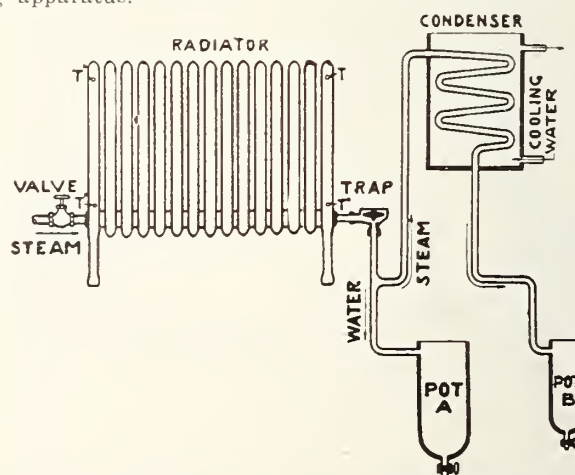


Fig. 1—General Diagram of Testing Apparatus.

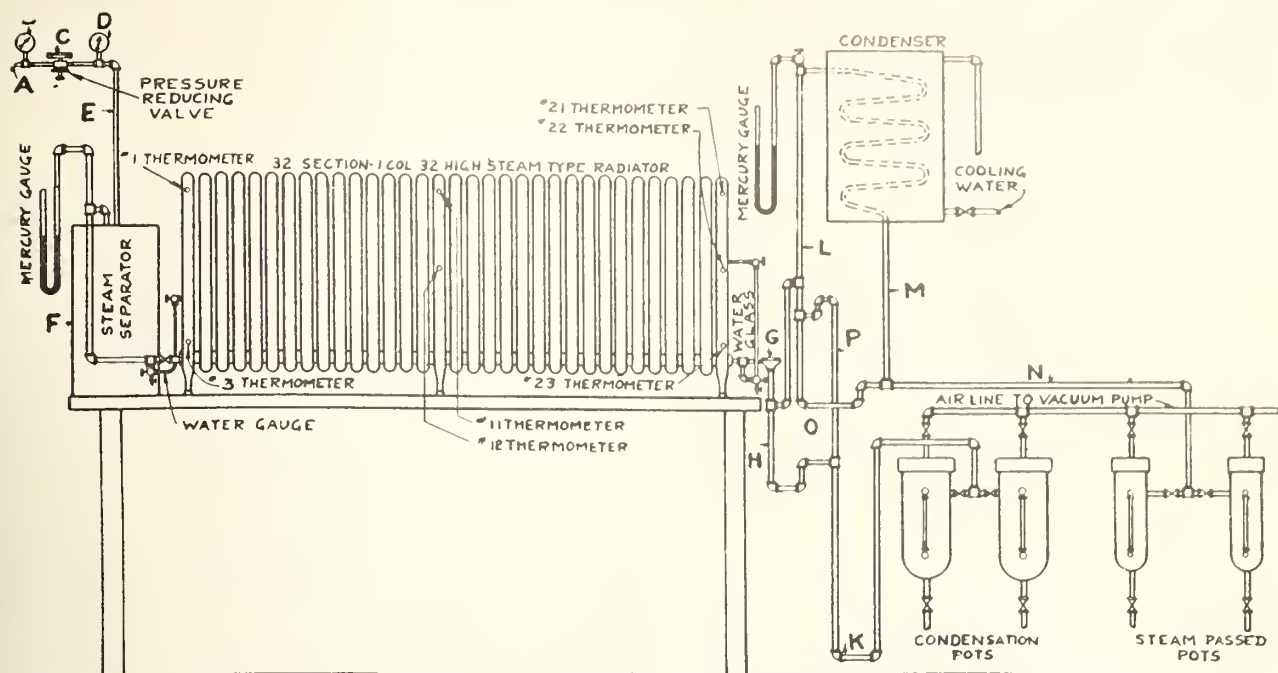


Fig. 2—Apparatus Used in Committee's Tests.

temperature proportions that indicate water-draining efficiency.

Testing Apparatus Used

Fig. 2 indicates the exact construction of the apparatus used in the tests made by the committee. This apparatus, it may be added, conforms in every respect with that used and recommended by the United States Bureau of Standards. The total radiator surface is 80 sq. ft.

The steam used comes by way of supply pipe (A) equipped with a steam gauge (B), a reducing valve (C), and a second steam gauge (D). By operation of the pressure-reducing valve and by observation of the two steam gauges, the different pressures required by different tests are obtained.

The steam passes by the pipe (E) into a steam separator where any water of condensation is collected and from the top of which clean and dry steam can be taken by the pipe (F). To this pipe is attached a mercury gauge registering in inches the pressure of the steam actually used. In the tests of the committee, the first set of tests was at 6 in. pressure and 10 in. vacuum; the second at 6 in. pressure and 0 in. vacuum; and the third at 1 in. pressure and 5 in. vacuum.

The steam passes by the pipe (F) and by an inlet valve into the radiator, the pipe and the first column of the radiator being cross-connected by the glass water-gauge. Any water of condensation about the inlet valve and the adjoining column or two of the radiator is indicated in the water-gauge. The temperature of the incoming steam was calculated according to the indicated pressure at which it entered the radiator.

(To be concluded in next issue)

(Continued from page 16)

"Too many people forget the relation of fresh air and adequate ventilation to the healthful heating of the home. Heat without ventilation becomes 'stiffness'—a decided lack of pure, fresh, invigorating air.

"You can't get successful and adequate ventilation by merely opening the windows. Instead, such a practice defeats your purpose.

"Ventilation should be a part of the heating system to insure permanently successful results. Thousands have found this true in the — furnace, installed in efficient manner by expert workmen, such as compose our staff."

Another firm approaches the furnace question from an entirely different point of view, yet one which is of vital importance in the mind of every furnace owner, particularly in these times of uncertain fuel supply and consequent high prices.

Across the top of the advertisement was shown a loaded coal truck with the caption "Reduce the Number of Those Loads," and followed by the copy. "How many times a year does the coal truck have to stop at your residence? Why not reduce the number of coal deliveries and get perfect heat as well? Coal costs won't bother you nearly so much if you instal a — furnace."

There is a point that should be borne in mind, however, in the advertising of furnaces. It is not enough to advertise furnaces as you would stoves and leading people to believe that all there is to the furnace business is to buy one and set it up as you would a stove. The idea of selling a heating system should be stressed, service being taken into account.

There are the questions of capacity—the ascertaining of the required amount of heat for a given building and the form of installation that will provide this amount most economically. There is the providing of the right size and kind of chimney, the ascertaining of the best location for radiators and registers and their required capacities for the rooms to be heated and other problems dealing with the piping. All these must be given consideration if service is to be provided and it is this expert service that the customer must be made to consider in purchasing a heating system.

Quite frequently when purchasers of furnaces do not secure results, the furnace is blamed when as a matter of fact the fault lies with the person who installed the furnace. It is a regrettable feature that a good furnace made by a reliable manufacturer is often unjustly condemned by the user because results are not as expected.

May Locate at Soo

Sault Ste. Marie, Ont.—Consideration is being given by the Board of Trade to a proposition of L'Air Liquide Society to establish a branch plant here, a canvass of the different users of oxygen and acetylene indicating that the demand would be sufficient to meet the expected output of the firm.

Factory Changes Location

Buffalo, N.Y.—The plant and offices of the J. H. Williams Co., tool manufacturers, will be removed to this city from their present location in Brooklyn. A representative sales force will retain offices and warehouses in Brooklyn.

Sanitary Engineer

Plumber and Steamfitter of Canada

ESTABLISHED 1907

Member Audit Bureau of Circulations

PUBLISHED TWICE MONTHLY BY

The MacLean Publishing Company, Limited
 Montreal TORONTO, CANADA Winnipeg

Vol. XVII. OCTOBER 1, 1923 No. 18

Ventilation Problems

AN OLD theory of ventilation was founded on the belief that decidedly harmful substances were present in respired air, and as a result the removal of such air and its replacement with fresh air was practically the only factor considered worthy of discussion.

Foul air was considered as air that had been contaminated by human respiration and fresh air its antithesis, provided always it was obtained from out of doors and not from any place inside a building.

These terms, unfortunately, still encumber much of the literature of "aerology" and prevent to a great extent the proper appreciation of what ventilation means at the present time and what really can be accomplished by properly-designed mechanical equipment.

Leonard Hill, in his report of the recent experiments in the Physiological Laboratory of the London Hospital Medical College, says:

"Heat stagnation is the one and only cause of the discomfort arising from the so-called vitiated atmosphere of crowded rooms. The moisture, stillness and warmth of the atmosphere are responsible for all the factors, and all the efforts of the engineer should, therefore, be directed toward cooling the air in crowded places by setting the air in motion by fans."

It is, therefore, apparent that the physical condition of the air is of great importance, indeed it is the determining factor so far as physical comfort is concerned. At the same time the engineer cannot safely neglect the dust content of the air, the bacteria it may contain, odors that may be present, an excessive amount of carbon dioxide, a deficient supply of oxygen or the presence of deleterious gases.

In solving ventilation problems, each must be given its proper weight as a part of the whole.

Heat Transmission

DEFINITE steps are being taken by many authorities. There is a tendency among the plumbing trade in Canada the object of bringing about more efficient heating and the saving of fuel. The Building Research Board, an English body which has been working on the subject, deals at length with walls of brick, plaster and concrete in a recent statement. The results confirm in a remarkable way the long-held opinion that no method of building is cheaper, or more effective in regard to heat transmission, than timber frame con-

struction. The section used for the experiment was $\frac{3}{4}$ -in. weather boarding on 1-in. rough boarding outside, with lath and plaster inside, all on 4-in. by 2-in. studding. This method gave the low heat transmission factor of 9.6 B.t.u. per square foot per 24 hours for 1 deg. F. difference of temperature between the wall faces inside and outside the structure. Brick in lime mortar ($8\frac{1}{2}$ -in. work) was next with 14.1 B.t.u., and then came stock brick 16.3 B.t.u. (9-in work).

Three appendices, dealing with similar research respectively in Norway, Sweden and Germany, furnish correlated information and add materially to the value of the report. Among other things it has been established that sawdust is an excellent filling for hollow walls; that lightly-burnt bricks are better non-conductors than burnt-hard bricks; that it is important to prevent the circulation of air in hollow walls and to ensure that it is kept dry; and that it makes all the difference whether the main body of an external hollow wall is on the outer or inner face. If the bulk of the material is inside, it is the more easily maintained in a dry condition; it is more efficient, and there is a corresponding economy in fuel consumption for equal heating.

It may be asked: What is the practical value and outcome of these experiments? H. O. Weller, the Director of Building Research, furnishes an excellent answer in his introduction. Taking two recorded results with bricks from Dr. Griffiths' principal table, he shows that over a period of 170 days—an assumed season for artificial heating—there would be a saving of about 1.13 tons of coal in a six-roomed house if the more efficient brick were adopted for building.

Misplaced Condemnation

IN DISCUSSING business conditions with manufacturers these days one frequently hears the statement that people are buying too many luxuries on extended payment terms and thus straining credits; that such buying of luxuries is resulting in a neglect of buying of necessities and that such a condition is responsible for much of the present situation in business which in some lines is described as "uncertain." Pointing out that credit is the servant and not the master, a prominent financial authority recently stated that credit may be used either to minimize or to exaggerate the effects of the imperfect adjustments of trade and industry but that credit in itself is not the cause of the cycles of prosperity and depression.

There is a tendency among the plumbing trade in Canada to go on the cash basis instead of credit. A condition of credit strain such as has been existing here for some time past is apt to encourage this tendency and even to cause alarm. The credit principle should not altogether be blamed, however, for strain on it is more likely the result of abuse than use. The fact remains that 90 per cent. or more of the world's big business is done on credit.

Men borrow money because through credit so available they can carry out transactions that they believe will yield profits. They may be mistaken, but it is hardly logical to blame their mistakes on the availability of credit. Even if they were saved from their mistakes, either because no credit could be had at all, or because those in control of it exercised superior judgment, the situation would not be one whit altered. It is the degree of accuracy with which the collective business judgment estimates a given situation, that determines the outcome of enterprise. The fundamental characteristic of any well organized credit system is that credit shall always be available for sound business enterprises.

At the same time the importance of credit and the responsibilities of those in control of its use, cannot be minimized.

Too Much Propaganda Interferes With Business



TWO places at which we stopped the other morning were widely different in every respect. One was a newspaper office; the other a hardware store. The two men we talked with were distinctly opposite types. One was a city editor; the other a merchant. And yet both talked on precisely the same subject.

"I get enough confounded advertising literature, propaganda, poor advice and unnecessary suggestions through the mail, every day, to keep an old-time election bon-fire going for eight hours running," was the greeting we received from the merchant.

"It's a shame," he continued, "the amount of money that's spent on this kind of stuff. If I attempted to read one-quarter of it I'd never get time to do any real business. Something ought to be done about it."

In the city room at the newspaper office the floor around the city desk was littered with papers, pamphlets and envelopes in riotous confusion.

"What's the matter; had a cyclone?" we asked.

"What do you mean; that stuff on the floor?" queried the city editor looking up.

We nodded.

"No; that's just part of the propaganda we get here every day," he replied. "The way it comes in you'd think everybody spent most of their time doing publicity stuff."

"I'd like to have the amount of money that's spent in just one day on propaganda in this country. I'll bet I could live like a prince 'till I'm a hundred and then leave enough to found a hospital," he concluded.

The opinions of these two men are typical expressions of a belief that is growing throughout the country.

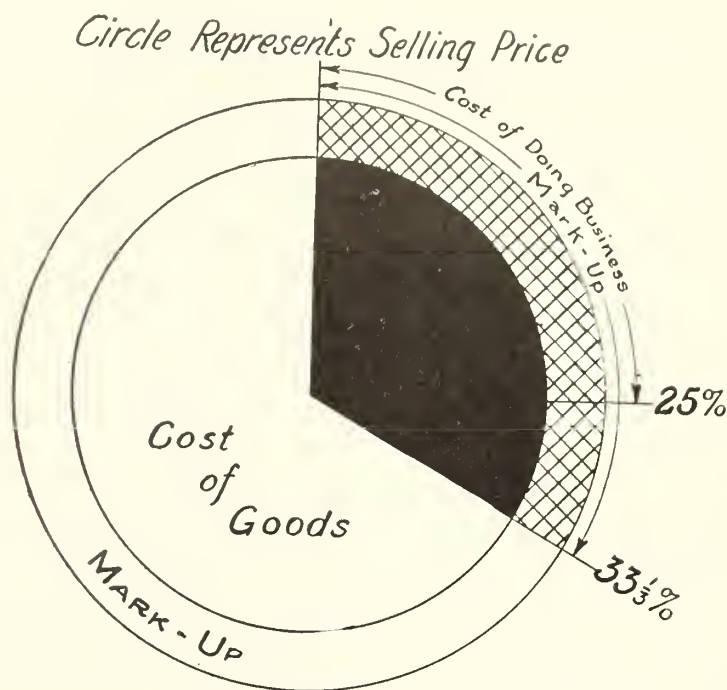
If one-half of the money now spent for propaganda were invested in constructive business enterprises, in better wages and in carefully planned and intelligently placed advertising, distribution costs might be lowered, and perhaps there would be less need for the purely explanatory and defensive propaganda that now finds its way to the waste basket in every office of the land. What do you think?—Hardware Age.

Why Percentages Should Be of the Selling Price

Minute Message No. 30

Written for Sanitary Engineer by FRANK STOCKDALE

Profit-Figuring Series



A MARK up of 33 1-3% of the sales is exactly one and one-half times as much money as the same percentage of the cost.

Suppose an item costs \$3.00—

(1) 33 1-3% on the cost is a mark-up of \$1.00, making the selling price \$4.00.

(2) 33 1-3% of the sale is \$1.50 and the selling price is \$4.50.

The difference is \$.50 on a \$4.50 item—more than ten per cent. of the selling price and exactly one-sixth of the cost, which in itself makes a very good net profit.

The above illustration shows the difference in the size of the mark-up when the same percentage is taken from the cost and the selling price of any item.

If the cost of doing business were 25% of sales—and cost of doing business is almost always of sales—the merchant would just break even with a mark-up of 33 1-3% on the cost.

In other words there is just as much money in "cost of doing business" section of the whole circle as there is in the shaded section—"cost of goods."

Better be safe than sorry.

Figure percentage of mark-up of your sales.

THINK IT OVER--APPLY IT TO YOUR BUSINESS

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How Modern Machinery Kept Down the Overhead for a Heating Contractor

Power Pipe-cutting and Threading Machines Shown to Save Money and Make Hard Work Easy—Gets Work Done Quickly—Some Actual Facts and Figures—Machines for the Small or Large Shop

Written for Sanitary Engineer by EDWIN NEWSOME, Consulting Sanitary and Heating Engineer

NOT very many years ago the writer took a contract to instal a heating system. The largest size of pipe on the job was four inches. Not having a pipe machine to cut such a size, figures were procured to cut and thread all the pipe for the job, above two inches in diameter. The best price submitted was \$61.75. The pipe had to be hauled back and forth by the heating contractor and the cost of this would have amounted to \$14.30, bringing the total to \$76.05. That's one story.

Another experience: A heating contractor took a job about four miles from the city. Some eight inch pipe was necessary for the job. The contractor had been in the habit of getting his pipe cut at a local machine shop, which by the way, he had run up such a business as to warrant the purchase of two pipe-threading machines, and the writer was informed by this very machinist that his pipe-threading machines paid him the biggest profit of any investment he had made.

This heating contractor, having the large pipe to cut and thread, could see plainly that to haul backward and forward all the pipe in sizes from two and one-half inches to eight inches, was going to increase his cost and cut a big slice off his profits. He therefore began to devote some time to finding out how he could increase his business on the whole, and how this particular job could be made to show a substantial gain in place of a big loss.

This contractor never dreamed that to instal power pipe-threading machines

would be the means of revolutionizing his business, but it was, and to-day that very concern is one of the largest in Canada. The writer, in speaking to the proprietor not very long ago, referred to the time, years ago, when power machines in the shop were looked upon as luxuries, to which the proprietor replied with feeling: "It's beyond my power of comprehension to know how we managed to get the work out with the aid of the machine shop."

Speaking to another contractor some years ago, the statement was received that the small contractor, employing one or two men, could not afford to invest in power threading machines. The time has come since, though, when this contractor had an opportunity to tender on a little bigger job than he had usually undertaken, and his revised opinion is that a power machine meant more to him than three or four extra men. To-day, though, this man conducts only a moderate sized establishment, he has often stated to the writer that the power pipe-threading and cutting machines solved his labor problem.

Get Down to Real Data

First of all, power pipe machines are designed to cut and thread pipe at a lower cost than is possible by the use of man power. The cost of a man, even a laborer, would be at least forty cents per hour and hand pipe-threading is hard work. Thus, there is a first loss on even a forty cent per hour man on account of reduced production in pipe-cutting and threading.

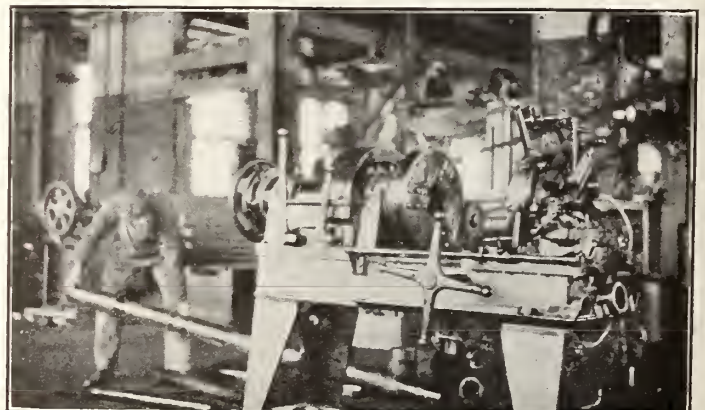
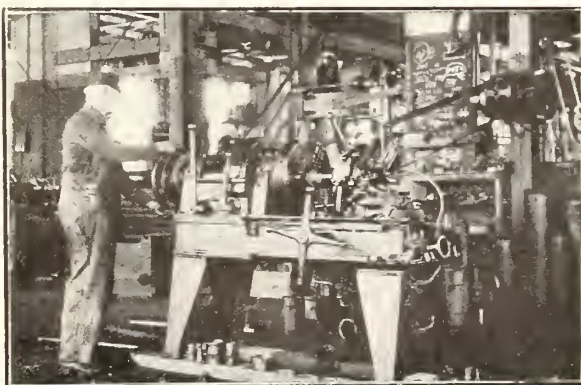
In the designing of a power machine for cutting and threading pipe, the material of which the pipes made must be known so as to determine the speed at which it can be cut. Specially tempered tool steel for the dies or chasers must be furnished and the speed at which such dies will cut a clean thread must be determined also.

The ease with which various changes of speed can be effected is an important factor and the period of time taken to cut and thread a pipe is a matter to be computed easily. The motive power and transmission to the threading machine plays an important part with the numerous changes of speed procured in a gear box.

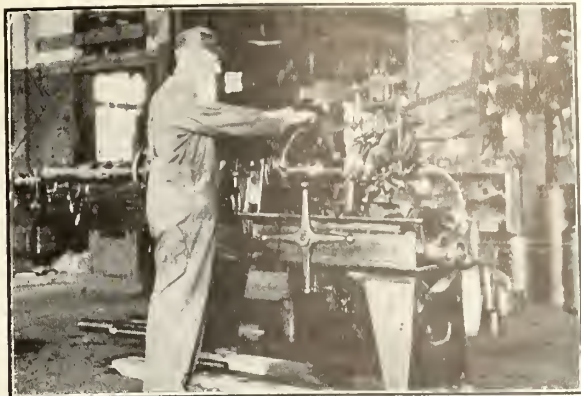
Now, the rate of travel is the factor which determines the threading speed and, of course, the greater the speed of pipe travel, the more thread can be cut per hour. Most electric motors travel at a very high speed and this speed must be reduced, thus bringing, as it were, the speed down to actual brake horse power, for after all, all forms of power work act as a kind of brake upon the agency from which the operated machine derives its motion.

Speed to Cut and Thread Pipe

Experience has proven without doubt that a pipe should not travel faster than twenty feet of its circumference a minute when being threaded and if a small pipe, say one inch in diameter, is being threaded, it must revolve at a greater speed than if a two-inch pipe were being



Showing pipe cutting and threading machinery.



Pipe cutting and threading machinery in use.

threaded. For example, the circumference of a two-inch pipe is 7.4 inches and that of a six-inch pipe is 20.8 inches. On threading pipe of these sizes the die must cut metal from the pipe as it travels round, and it must cut it off smoothly so that when screwing the pipe into a fitting the threads will fit well and insure a really tight joint.

Very well, let us say that the pipe is being turned round at a speed of twenty feet per minute. The size is two inches; therefore the pipe would have to revolve 32.5 times per minute, so that it would take about one minute of actual time to cut two, and one have a two-inch thread. A two-inch pipe has about twelve threads to the cut.

When a six-inch pipe is being threaded, the pipe must revolve about fourteen times to cut a complete thread and traveling at the rate of twenty feet per minute this would mean that the pipe would revolve 11.5 times per minute, which proves conclusively that a six-inch pipe can be threaded in about one and one-quarter minutes.

More Than Mere Threading Time

It might justly be said that it takes time to insert pipe in a machine and take it out; that the mere threading of the pipe is only part of the time involved. Just so, and for the benefit of the reader and for the trade as a whole, tests have been made by a disinterested plumber and steamfitter.

Several changes had to be made just as would occur on a job. Short lengths of pipe were used, not more than five feet, and the time items included in the threading time includes locking pipe in vise, cutting the thread and releasing the dies. Cutting time includes putting on cutter and making cut, which two operations complete the job. The sides of pipe varied from one-inch to four-inch inclusive.

Table Showing Time Taken in Cutting and Threading Pipe by Power Machine

Pipe Sizes	To Cut Min. Sec.	To Thread Min. Sec.	Total Min. Sec.
1 in.	0 14	0 40	0 54
1¼ in.	0 15	0 40	0 55
1½ in.	0 15	0 50	0 65

2 in.	0 20	1 00	1 20
2½ in.	0 26	1 20	1 46
3 in.	0 28	1 30	1 58
3½ in.	0 30	1 40	2 10
4 in.	0 32	2 00	2 32

The Human Factor

To procure the greatest degree of efficiency from a workman these days is to make hard work easy. That is a statement easy to prove. The day is gone when a man takes pride in his job if it be a hard one. Men, as a rule, are only overgrown boys and, like boys, are pleased to see a lot done in a day. There is a certain amount of satisfaction in being able to feel like the village blacksmith referred to in the poem that runs: "Under the spreading chestnut tree, the village smithy stands," where the smith's heart feels glad as he reflects: "Something attempted, something done, has earned a night's repose."

Hard work made easy by the adoption of power pipe-threading machines secures results sufficiently great to warrant in most cases the cost of investment in such machines.

There is no doubt whatever but that the plumbing and heating industry will have to adopt more labor-saving equipment in their business, and it is astounding to find out the amount of waste ends of pipe that could be turned into good stock.

The writer once showed a clear margin of \$800 in one year in a certain shop as the direct result of being able to have all short pieces of piping from each job threaded up and put into stock. A number of bins filled with short, threaded pieces of pipe are a boon to every shop and particularly when a big "roughing in" job is being handled, and when these short ends can be made into good saleable stock by the use of power machines, it seems almost an industrial crime to permit the waste.

TWO BETTER RELATIONS

(Continued from page 19)

From the toy store borrow a dressed doll, of the same size as an average child of a year in age. Get, from the same source, a set of alphabet blocks. Pose

this doll with the blocks, as shown by the photograph.

On each side wall of your window, place something in the way of wall ornamentations that will harmonize with the rest of the window.

The large card shown in the centre below the radiator in this picture reads: "HEAT BY RADIATORS—Is The Modern Way of Warming Any Building With The Most—COMFORT, ECONOMY, CONVENIENCE." The other card at the right hand of this picture reads: "STEP IN—You Are Cordially Welcome to Question Us About—HEAT BY RADIATORS."

CAMPAIGN FOR WATER SYSTEMS

St. John, N. B.—James Robertson and Co. Ltd., have instituted a campaign in behalf of water systems for country homes. Exhibits have been placed in most of the Eastern Canadian fairs, as one of the principal means of attracting attention to the campaign. To each visitor to the fairs, the following circular is given: "You can have running water in your country home and enjoy the same conveniences as those living within the city limits.

"The price is reasonable, as the cost of upkeep is remarkably low, and the saving in time and labor proves a most valuable investment for the home in the country.

"These systems can be supplied by us for use by hand, gasoline or electric power, all units being supplied complete, and range in size from those for bungalow to the largest farm building. You will find our exhibit where our attendants will be pleased to demonstrate our systems and quote prices."

The local manager of the company is E. J. Terry, who is also president of the St. John Exhibition Association, and he has been instrumental in utilizing the fairs in the company's energetic campaign in behalf of the water systems.

DISCONTINUES BUSINESS

Broadview, Sask.—G. E. Sterling, who has conducted a tinsmithing business here, has discontinued his establishment.

News Notes From Coast to Coast

Doings in the Plumbing and Heating Industry

NEW BUSINESS

Comber, Ont.—O. R. Stevens, formerly of Chatham, has opened a plumbing and tinsmithing business over Reid's Hardware. Mr. Stevens has had considerable experience in this work in Chatham.

NEW PLANT OPENED

Ottawa, Ont.—W. G. Edge, Ltd., heating, plumbing and sheet metal contractors, have announced through the local press the opening of their new factory, which is fully equipped for all classes of sheet metal work.

SUFFERS FIRE LOSS

London, Ont.—In the recent disastrous fire in the business section of the city the Wright Teal Plumbing Co. were among the firms whose premises were damaged.

NEW BUSINESS

Windsor, Ont.—The Universal Oil Burner Co. Ltd., which has established temporary headquarters at 11 Brock St., will manufacture and market in Canada, principally through the heating, plumbing, and electrical trades, a smokeless oil burner, which is the invention of Donald Stuart, president and chief engineer of the company.

ON BUSINESS TRIP TO CANADA

Gilbert Shanks, of Shanks & Co., Barrhead and Kilmarnock, Scotland, manufacturers of a wide range of sanitary enameled ware, is at present in Canada on a business trip. He is spending some time with W. H. Cunningham, of W. H. Cunningham & Hill, Ltd., representatives in Canada for this line. He will visit all the chief points in Canada through to the Pacific coast.

PERSONAL

G. W. Mallory, Blenheim, Ont., manufacturer of the Marvel door holder, is now on his annual trip east to the coast, calling on the wholesalers.

George P. Fraser, Toronto, representing Sand's levels, Armstrong tools, Trimo wrenches, Detroit torch, etc., has left for a business trip to Vancouver, calling on the trade at intermediate points.

STOVE WORKS ENLARGED

Hamilton, Ont.—The Hamilton Stove and Heater Co., Ltd., has completed the arrangement of its manufacturing plant extending the buildings used for manufacturing to the rear and least valuable part of the property, taking advantage of the high rents available on the John St. frontage, which is one of the most

important cross-town streets in the city. This arrangement has provided approximately 25 per cent. increase in capacity.

OPEN NEW SHOWROOM

Toronto, Ont.—The Pease Foundry Co. have rented the premises next to their downtown offices on King St., and will open them shortly as a boiler showroom. The space at their disposal will allow a wide showing of their goods, as well as providing additional stockroom space in the rear.

SECURES HEATING CONTRACT

Durham, Ont.—The contract for installing a new hot water heating system in the North Grey Registry Office, Owen Sound, has been awarded to J. H. Harding, local plumber and hardware merchant. This is the first occasion a local firm has secured a contract in the county town against county competition.

ENGLISH FIRM CHANGES HANDS

London, Eng.—Announcement is made of the purchase of the Woodchester, Glos., works of the United Brassfounders & Engineers, Ltd., by Newiman, Hender & Co. Ltd., whose business was absorbed by the United Brassfounders in 1910. A complete line of valves, cocks, and general steam and water fittings will be manufactured.

BELLEVILLE FIRM BUSY

Belleville, Ont.—The contract for re-modelling roof and cornices of the post office building has been awarded to Howe & Hagerman, sanitary and heating engineers. This firm also has workmen engaged installing plumbing, heating, and ventilating systems, in two schools in Sydney Township, and the new consolidated school at Frankford, and has just finished a large contract in the new Coleman ward school.

LARGE HEATING INSTALLATION COMPLETED

Montreal, P. Q.—The new heating plant of Henry Morgan & Co. Ltd., St. Catherine St., departmental store, has been completed and put into operation. The heating plant is across the road from the main store block, and connected to it by a subway. The building housing the new plant occupies a space 75 by 100 feet.

RETIRE PREFERRED STOCK

Toronto, Ont.—Shareholders of the Port Hope Sanitary Mfg. Co. have been notified to attend a special meeting at the head office on Oct. 29, to approve a by-law for the retirement of the preferred stock by the purchase and cancellation of 5,000 shares. The company is capitalized at \$500,000 preferred, and \$750,000 common, of which \$456,000 preferred is outstanding, and \$750,000 of common.

ROTARIANS HEAR NEWSOME

Oshawa, Ont.—A very practical address on "The Value of Sanitation" was delivered before the Rotary Club recently by Edward Newsome, of the Department of Agriculture. During the address, Mr. Newsome referred to the proposed new sanitary and plumbing by-laws, and urged that these be given full support, as the health and success of any community depends very largely upon its system of sanitation, and its water supply.

APPLIES FOR SANITARY POST

Amherst, N. S.—An application has been received from J. B. Black, by the town council, asking that his qualifications be considered when the post of sanitary inspector, made vacant by the death of the late Mr. McCaughey, is made. The vacancy has not yet been filled.

MAKING SANITARY SURVEY

Stouffville, Ont.—Norman M. McLean has been appointed by the Board of Health to make a sanitary survey of the civic territory. Stouffville is without a proper sewage system, and there is a network of drains, laid by private enterprise, of which no record exists. Hydro workmen installing the new power system were constantly discovering drains while digging postholes.

WILL ENFORCE REGULATIONS

Peterborough, Ont.—While the local health authorities have met with a good deal of success in their campaign to rid the city of unsanitary outdoor closets, Sanitary Inspector C. S. Stapleton has reported to the Board of Health that there are a number of residents who have been warned to make the change who have ignored the warning. It has been decided to prosecute these offenders.

CHLORINATING PLANT OPENED

Cobalt, Ont.—The chlorinating plant at the town water pumping station has been placed in operation and citizens are rapidly becoming accustomed to the change in the taste of the water.

Important Changes in Bankruptcy Act Effective October 1

Outstanding Feature is the Abolition of Present System of Authorized Trustees and Substitution of Procedure More Favorable to Creditors — All Assignments to be Made to Official Receiver

THE outstanding feature of the Bankruptcy Amendment Act, which comes into force on October 1, is the abolition of the system of authorized trustees and the adoption of the English method of administration of insolvent estates by trustees elected by the creditors, the main object of the new Act being to give the appointment of the trustee or trustees at the outset to the creditors, who are most interested in choosing a proper person. This will ensure the feeling on their part that they can have confidence in the trustee.

Under the Bankruptcy Act of 1919, a large number of authorized trustees were appointed by Order-in-Council, especially in the Province of Quebec, with unsatisfactory results to commercial interests in numerous cases. Consequently, a joint committee of the Canadian Manufacturers' Association and other organizations, after several meetings, made representations to the Department of Justice, with a view to securing the substitution of a method of procedure which would ensure the trustee being the servant of the creditors and not of the debtor. The amending act is the result.

Under this measure, all assignments are to be made to an official receiver, in each bankruptcy district, who shall be deemed to be an officer of the court and shall be appointed by the Governor-in-Council.

Concurrently with the making of the assignment, the assignor must deposit with the official receiver his sworn statement of assets in the prescribed form, showing the property of the debtor divisible among the creditors, the names and addresses of all his creditors and the amounts of their respective claims, and the nature of each, whether privileged, secured or otherwise. The assignment is then filed with the court by the official receiver. The official receiver then appoints a custodian, whom he shall, as far as possible, select from the most interested creditors.

The custodian then takes charge of the property of the debtor and the debtor ceases to have any capacity to dispose of or otherwise deal with such property. In the case of compulsory assignments, the appointment of a custodian will be made by the court.

The custodian then calls a meeting of creditors within fifteen days. At this meeting, the creditors shall by ordinary resolution appoint any person but the official receiver as trustee for the administration of the estate. A trustee

may be removed and another appointed or substituted at any meeting of the creditors.

Where an insolvent debtor intends to make a proposal for a composition, extension, or a scheme of arrangement of his affairs, he may, after the making of a receiving order against him, or the making of an authorized assignment by him, require in writing, the trustee duly appointed to convene at the office of such trustee a meeting of such debtor's creditors, for the consideration of such proposal. If the Court approves the composition, extension or scheme on being duly submitted to creditors, and shareholders, it may make an order annulling the Bankruptcy or Authorized assignment, and vesting the property of the debtor in him, or in such other person as the Court may appoint, on such terms and subject to such conditions, if any, as the Court may declare.

Sanitary Inspectors' Association Re-elect E. W. J. Hague as President

E. W. J. HAGUE, chief health inspector, Winnipeg, Man., was re-elected to the presidency of the Sanitary Inspectors' Association of Canada at the eleventh annual convention of that association, held in Calgary in September. A. Officer, tenement and supervising inspector, Winnipeg, Man., was re-elected secretary-treasurer.

The election of branch presidents resulted as follows: Ontario, A. R. White, chief provincial sanitary inspector, Toronto, Ont.; Manitoba, J. W. Richardson, sanitary inspector, Transcona, Man.; Saskatchewan, A. Wright, sanitary inspector, Prince Albert, Sask.; Alberta, L. H. Bennett, principal, Institute of Technology, Calgary, Alta.; British Columbia, H. S. Sturgess, Vancouver, B. C.

The executive council for the year is composed as follows: President, immediate past president, branch presidents, secretary-treasurer, A. Rigby, R. McQuillan, F. C. Austin and H. H. Marshall.

The presidential address, dealing with "The Sanitary Inspector. What He is, What He Should be, and His Value to the Community," formed one of the outstanding features of the opening session of the convention. While an able paper on "Methods of Infection and Disinfection," by Dr. W. A. Lincoln, and an address on "The Veterinarian in Relation to Public Health," by R. C. Duthie, V. S., D. V. S., Health of Animals Branch, Department of Agriculture, Dominion Gov-

External Trade Shows All Round Improvement

ANADA'S external trade is showing greater activity this year than in last, according to figures compiled by the Dominion Bureau of Statistics. They indicate that during the five months of the fiscal year, ending August 31, Canada's exports reached a total value of \$386,226,799, as compared with \$316,640,668 over the same period of the preceding year. Similarly, the total export business for the twelve month period ending August 31 reached \$1,001,037,574 as compared with \$779,467,399 for the twelve months immediately preceding.

Canada's total imports for the five month period were \$392,979,117 and for the twelve months \$891,891,035, the figures for the five and twelve months of the previous fiscal year being \$303,597,326 and \$732,391,895 respectively.

In the matter of duties collected, the proportion of increase is comparatively similar. Collections for the five months ending August 31 were \$57,712,148 as compared with \$55,516,217 for the same five months of the preceding year. For the twelve months ending August 31 the total was \$135,987,445 as compared with \$127,484,256 for the preceding year.

ernment, formed important items of the same session.

On the following day, a number of equally interesting topics were dealt with, among them being: "A Triangle of Inspection," by C. C. Thom, B. A., M. Sc., chemist and bacteriologist, Union Milk Co.; "Some Causes in the Spread of Infection," by A. Wright, sanitary inspector, Prince Albert, Sask.; "The Activated Sludge System of Sewage Disposal," by G. Purden Head, provincial sanitary inspector for Alberta.

FRAUD CHARGE DISMISSED

Toronto, Ont.—George L. Rapier and William A. Wineberg were defendants in a recent court action here, charged with obtaining \$50 by fraud from Herbert Carter, of the Carter Welding Co., they being supposed to have sold the sole Canadian rights of an aluminum solder to a number of people, each at \$50. The case was dismissed, evidence not being available to prove the sale of "exclusive rights."

OBITUARY

Montreal, P. Q.—Edward A. Tait, a retired steel manufacturer of this city, passed away in New Rochelle, N. Y., following a brief illness. He was 59 years old and had been visiting friends in that city when taken ill.



DISGUSTED

Peter and John (seeing a large plate-glass pane put in): "We may as well go home. They are not going to let it fall."

MIRRORS NOT NEEDED

"I do not see a single mirror in your house."
"What is the use? We have floor varnish."

PA HAD BEEN THERE

Little Willie: "Say, pa, what is Paris green?"

Pa: "The average American tourist in France, my son."

TOO GOOD

"Am I good enough for you?" sighed the timid lover.

"No," said the girl candidly, "you're not, but you are too good for any other girl."
S. E.

GETTING EVEN

Wifey: "This book says that men grow bald because of the intense activity of their brains."

Hubby: "Yes, and I suppose women have no whiskers because of the intense activity of their chins."—S. E.

SARTORIAL

"Did you ever try a London tailor, Binks?" asked Witherbee.

"Yes—once, but never again," said Binks, "why, Bill, I don't believe one of those London tailors could make a coat of paint fit a hen-coop."

FOLLOWING INSTRUCTIONS

Mike was passing Pat's house and saw Pat painting his home on a hot summer day with three heavy coats on. He asked Pat if he was cold and Pat said: "No, but the color card said to put on three coat to get the best results."

METHOD IN HER MADNESS

Oh, rouge is red and powder's pink,
And when these's things Sal's face encase,
They serve the damsel's purpose well—
In staving (?) off a homely face.

SOME GRAMMAR

Prof. Abraham Lincoln Williams: "Ulysses, am pants a common noun?"

Ulysses S. G. Adams: "Pants am an uncommon noun, Professa."

Prof. A. L. W.: "How come—uncommon noun?"

U. S. G. A.: "Becos, Professa, pants am singular at the top an plural at de bottom."

THE REASON WHY

A little boy asked his father, a confirmed dyspeptic: "Dad, did Moses suffer with indigestion?"

"I am sure I don't know," snapped his father, whose temper was rather soured by his infirmity.

"Well, I think he must have had it, for our teacher told us on Sunday that God gave him two tablets."

A GOOD REASON

Sympathetic Visitor: "So sorry, Johnny, that you had toothache yesterday. Has it stopped aching now?"

Johnny: "Don't know. The dentist kept it."

NO CAUSE FOR ALARM

He: "I just read an account of two girls getting lost in the Alps in mid-winter."

She: "Terrible! Were they frozen?"

He: "No, they warmed themselves on the mountain ranges."

NOT FIT COMPANION

Mother: "Tommy, you must not use such dreadful language."

Tommy: Well, Mum, Shakespeare uses it."

Mother: "Then you are not to play with him any more. He's no fit companion for you."

ABUSED

He struck her, but she uttered not a sound. He struk her agen butt no wurd eskapt her lips. Once moor he hitted on the hedd brav thing that she wuz, she did not even wimpurr. Then enraged beyond awl reezon at her unconcern of his akshuns, the brute uttered a lo oth and began raining bloo after bloo on her prettee little hedd, even skratcing hur in his maduus. Even thru this she had reamined silent. Butt finelly, not being able to stand it any longer, she heeved a reluctant sputter and berst into flame.

For yu sea she wuz only a match.

ACCOUNTED FOR IT

"Have you seen anything of that plaster of Paris I brought home yesterday?"

"Was it stuff that looked like flour, in a paper bag?"

"Yes, that's it."

"And does it get hard when it is wetted?"

"Yes."

"And sticks to everything like glue?"

"Yes."

"Oh, Joseph! It is just like you to leave horrid stuff like that lying about. Why, it took me more than half an hour with the hammer and chisel to get the cake out of the baking-tin."



Following items are reproduced from MacLean Pub. Co., trade paper files of September, 1903:—

"Stevenson & Malcolm, recently with Bennet & Wright Co. Ltd., Toronto, have started in business in Guelph, Ont., and have several heating contracts calling for 'Safford' radiators."

"One of our visitors a few days ago was W. J. Burroughes of London, Eng. About ten years ago he was one of the best-known master plumbers in Canada, having his headquarters in Toronto. He was instrumental in starting the National Ass'n. of Master Plumbers."

"H. A. Knox, Ottawa, secretary National Master Plumbers' Ass'n., reports the organization of local associations in Victoria, B.C., and in Sherbrooke, Que. J. Brown is president of the Sherbrooke association, with R. Sampson secretary, and including A. R. Wilson, Complin & Delorme, O. Trudeau, J. O. Brousseau and P. Lebreque."

"The semi-annual convention of the Ontario Ass'n. of Master Plumbers is to be held in Toronto on Thanksgiving Day, October 15. President Mansell had his sub-executive committee together this week."

"A friendly baseball game took place between teams representing the president and first vice-president of the Toronto Master Plumbers' and Steam Fitters' Ass'n. at Woodbine Park. President Ross selected his team from the west end of the city, the personnel being Messrs. McPherson, Jas. Powers, Maxwell, Benson, Robinson, R. Harrison, Torpy, Jessamine and Boddington. The vice-president's team was chosen from the east end, including R. Wright, M. Mullen, Menzies, J. Fullerton, Lyndon, Allison, Cooper and Thompson. The game resulted in a tie, 24 all, which will be played off later."

Catalogs and Booklets

Those interested in any of the catalogs described below can procure a copy of the same by writing direct to these firms. Mention that you noticed this in Sanitary Engineer.

PLUMBING AND HEATING SPECIALTIES CATALOG

A new catalog, No. "A," has just been issued by W. H. Cunningham & Hill, Ltd., 269 Richmond St. West, Toronto, which covers completely their wide line of high-grade plumbing and heating specialties and tools. This volume contains sixty-four pages, each article being illustrated by a clear and well defined cut, which is accompanied by a complete description.

This catalog takes the form of a combined catalog and price list and is arranged as nearly as possible in alphabetical order, making same a handy and quick reference both as to prices and goods which may be obtained from their stock.

EAVESTROUGH, CONDUCTOR PIPE AND FITTINGS

A new catalog has been issued by Wheeler and Bain, Limited, 179 King St. East, Toronto, which contains forty pages, and which covers a complete line of eavestrough, conductor pipe, conductor pipe fittings and roofing specialties, as well as many other lines of sheet metal requirements.

The size of this volume will allow of its being carried in the pocket, or it can be hung up by the string hanger. This catalog is well bound and will stand much usage.

A table of weights covering sheets is contained, as well as instructions for estimating corrugated iron jobs.

A valuable addition to the contents of this booklet is in the fact that it contains a list of prices and illustrations covering a full line of tin stock for heating work.

DATA BOOK AND STANDARD SPECIFICATIONS

A new book has been issued under the name of Data Book and Standard Specifications by the Duro Pump & Mfg. Co., of Dayton, Ohio, and which is being distributed by Empire Brass Mfg. Co., Ltd., of London and Toronto. The information contained in this volume is primarily designed to give essential and authentic information concerning the specification and installation of water supply systems, pumps, pneumatic pressure tanks and filters. This new book includes the following headings: Accessories, Booster Systems, Deep Well Pumps, Electrical Data, Foundation Plan, Friction Table, Pit Construction (waterproof), Shallow Well Pumps, Specifications (standard architect), Tank Discharge Between Pressures, Water Filters, and How to Compute Water Requirements.

Market Conditions and Tendencies

Price Trend on Sanitary and Heating Supplies

Markets at a Glance

BUSINESS conditions have shown improvement during the past two weeks, this being most noticeable in heating lines and repair work. Furnace and stove dealers report very good trade all year, up until the present, and in most cases substantial improvement has been noted over last year. A very optimistic view is taken regarding this trade during the remainder of the Fall, now that the coal situation has been settled, and as a good supply of coal is almost sure to be obtainable. Good trade in furnace and stove repairs has started and it is felt that a few more days of cold weather

will stimulate this line of business to a great degree.

A fair number of changes have occurred in prices since last issue of Sanitary Engineer. Range boiler prices declined, standard boilers now selling at 45 per cent. off list, in Toronto and Montreal; some lines of power washing machines also have declined.

An advance is announced in prices of wall and floor registers, and black sheets as well as scrap materials are also slightly higher.

Montreal Markets

MONTREAL, Sept. 29.—Dealers report that business conditions are much improved over those existing two weeks ago, and sales are reported to be most encouraging. A decline is noted in the price on enamelled ware, which is now being quoted at 35 per cent. off the list. Range boilers are now quoted at lower prices. A new discount of 45 per cent. is being quoted on standard boilers, with the exception of the 30 gallon size, which is selling at \$9.50 net. Extra heavy are quoted at 40 per cent. off the list.

Dealers in radiators and boilers state that business at the present time is exceptionally good and prospects for a good fall trade are very encouraging. The ingot metal market has hardly maintained the firm tone already shown, with the exception of tin, all lines showing a slightly lower tendency.

LOWER PRICES ON RANGE BOILERS

New and lower prices are now issued on range boilers. A new discount of 45 per cent. is now in effect on standard boilers, with the exception of the 30-gallon size, which is now selling at \$9.50 net. Extra heavy are now quoted at 40 per cent. off the list.

RANGE BOILERS—	
5 Gallon	\$13 50
12 "	14 00
18 "	15 00
25 "	16 50
30 "	special 9 50 net
35 "	20 50
40 "	22 75
52 "	38 00
66 "	60 75
82 "	74 00
100 "	103 00
120 "	117 00
144 "	164 00
168 "	187 00
192 "	210 00

Discount Standard, 45 per cent.; Extra heavy, 40 per cent.

DECLINE NOTED IN PRICE ON ENAMELED WARE

Montreal.

Enameled ware shows a decline this week, the discount now in effect being 35 per cent. off the list. Sales in this

line are reported as being quite good of late. Current prices are given herewith:

ENAMELLED WARE—			
Sinks, flat rim—	1 only	2 only	3 only
16 x 24	\$ 7 50	\$ 7 40	\$ 7 30
18 x 30	8 70	8 60	8 50
20 x 30	9 90	9 80	9 70
Bath tubs, roll rim, 4, 4½, 5 feet, 24 to 30 in. wide			51 40
Bath tubs, 5½ feet.			57 10
Lavatories—			
17x19 in. Apron F139 or P4045	15 30		
18x24 in. Apron F154 or P3845 or P3847	23 60		
18x21 in. Apron F169 or P4205	17 60		
17x19 in. Roll rim. F241 or P4345	12 60		
Less 35 per cent.			

CORRUGATED SHEETS SELLING IN SEASONAL QUANTITIES

Montreal.

Dealers in corrugated sheets report that sales in this line are quite seasonal. Prices are steady and are quoted locally as follows:

CORRUGATED SHEETS—	Per 100 sq. ft.
No. 28 gauge	7 00
No. 26 gauge	7 50
No. 24 gauge	10 00
No. 22 gauge	12 50
No. 20 gauge	14 00
No. 18 gauge	19 00
Less 10 per cent.	
Lighter than 24 gauge and wider than 27 ins., 75 cents per square extra	

CLOSET GOODS SELLING IN GOOD VOLUME

Montreal.

Dealers report that trading in closet goods is fairly active. Prices remain steady and are in effect locally as follows:

CLOSET COMBINATIONS—

Low Down Outfits,	each
Closet, standard outfit, oak	24 00
Do., post hinge seat	24 50
Do., oak vitro or Pussyfoot	24 00
Do., post hinge seat	24 50
Do., mahogany vitro or Pussyfoot, post hinge seat and cover	27 00
Do., vitreous china, oak post hinge seat and cover	29 00
Do., vitreous china, mahogany post hinge seat and cover	29 50
Do., white vitro or Pussyfoot, mahogany post hinge seat and cover	30 00
Do., enamelled iron tank, oak post hinge seat and cover	28 75
Do., enamelled iron tank, mahogany post hinge seat and cover	29 00
Add for ¾" valve on supply pipe	1 25
Add for spud	0 60
Add for reverse trap bowl	1 50
Add for syphon jet bowl	7 00
Deduct for supply pipe	0 80
Deduct for floor hinge	0 60
Richelieu bowl	8 00
Washdown bowl with spud	9 90
Reverse trap bowl with spud	9 90
Syphon jet bowl with spud	15 40

CLOSET SEATS—

Oak post hinge seat and cover	3 85
Oak wood strip seat and cover	3 50
Mahogany finish post hinge seat and cover	4 05

CLOSET TANKS—

Low down, oak vitro or Pussyfoot with fittings less seat	12 50
White vitro or Pussyfoot with fittings, flush elbow and supply	16 50
Vitreous china tank with fittings, flush elbow and supply	16 00
Enamelled iron with fittings, flush elbow and supply	18 90

BRISK TRADE NOTED IN RADIATORS AND BOILERS

Montreal.

Dealers in radiators and boilers state that business at the present time is exceptionally good, and a large volume of trade in this line is anticipated this fall. Business in this line is said to be in a very healthy condition at the present

time. Prices remain unchanged and are in effect locally as follows:

RADIATORS AND BOILERS—

Radiator list prices are for 1, 2, 3, 4 and 5 column radiators, per sq. ft.

45 in. to 38 in., \$1; 32 in., \$1.10; 30 in., \$1.15; 26 in., \$1.20; 23 in., \$1.26; 22 in., \$1.30; 20 in., \$1.36; 18 in., \$1.40; 16 in., \$1.50; 14 in., \$1.55; 13 in., \$1.60. Discount 44 per cent for hot water, and 45 per cent. for steam.

Wall radiators—5 ft., \$1.15; 6 ft., \$1.10; 7 ft., \$1.05; 9 ft., \$1.05; 12 ft., \$1.05; Discount 41 per cent.

Boilers—Round hot water boilers, sizes from 0 to 10, 52 per cent. off list. Square or sectional hot water or steam boilers, 15 in., 3 per cent. with Ontario Government trimmings, list. Square or sectional water boilers, 19 in. to 36 in., 8 per cent. Square or sectional steam boilers, 19 in. to 26 in., 6 per cent. Ontario Government trimmings, list plus 7 per cent. Square or sectional water or steam boilers, 48 in., list plus 10 per cent. With Ontario Government trimmings, list plus 18 per cent.

Round steam boilers, standard trimmings, 16 per cent. Ontario Government trimmings, 13 per cent.

F.o.b. Montreal, Toronto, Guelph.

COMPRESSION GOODS ARE SELLING IN GOOD VOLUME

Montreal.

Quotations on compression goods remain steady after the recent reductions in some lines. Dealers report that sales are showing considerable activity, and still better business is anticipated in the near future. Quotations in effect locally are as follows:

VALVES AND BIBBS—

Compression work, standard.....	48%
Fuller work, standard.....	30%
Quick opening, compression bibbs.....	45%
Bath cocks, quick opening.....	53%
Bath cocks, compression.....	45%
Basin cocks, quick opening.....	50%
Flatway stop and waste cocks, std.....	56%
Roundway stop and waste cocks, std.....	42%
Brass steam cocks, standard, 1/4 in.....	25%
Radiator valves, standard.....	55/25%
Do., removable discs.....	55/25%
Globe, angle and check valves, std.....	25%
Gate or straightway.....	25%
Emco globe valves.....	33%
Emco check valves.....	33%
Jenkins globe, angle, check and swing check.....	plus 15%
Jenkins gate or straightway.....	plus 11%
Jenkins iron body, globe and angle.....	plus 10%
Jenkins iron body, gate.....	12%
N. P. "O" and "S" traps.....	34%

LEAD AND ZINC GOODS SELLING WELL

Montreal

Lead and zinc goods are reported by dealers to be selling in good volume. Prices show no change during the past two weeks, and are quoted locally as follows:

LEAD AND ZINC PRODUCTS—

Lead pipe, per 100 lbs., up to 2 in.....	14 50
Do., 2 in. to 8 in.....	15 50
Do., 8 in. and over.....	16 50
Lead waste, per 100 lbs.....	15 50
Lead wool, lb.....	0 113
Lead sheets, 21 1/2 lbs., sq. ft. lb.....	\$ 10 1/2
Lead sheets, 3 to 3 1/2 lbs., sq. ft. lb.....	0 10
Do., 4 to 8 lbs., sq. ft. lb.....	0 09 1/2
Cut sheets, 3/4 c. lb. extra and cut sheets to size 1 c. lb. extra.....	
Solder, wiping, lb.....	0 24 1/2
Solder, commercial, lb.....	0 25
Solder, strictly, lb.....	0 27
Solder, guaranteed, lb.....	0 29
Solder wire, lb.....	0 39
Zinc sheets, casks.....	0 11
Do., broken lots.....	0 12

TRADING GOOD IN EAVESTROUGH AND CONDUCTOR PIPE

Montreal.

Eavestrough and conductor pipe have been selling in good volume during the past two weeks.

Prices on these lines have shown no change, the discount on eavestrough still being 65 and 5 per cent. off the list, and

the same discount being applicable to conductor pipe. The discount on conductor elbows remains unchanged at 50 and 10 per cent. off the list.

EAVESTROUGH—

O. G. round and half round, per 100 ft. 8 in., \$16.90; 10 in., \$18.70; 12 in., \$22.20; 15 in., \$35.50; 18 in., \$45.00.

O. G. Square bead, per 100 ft.; 8 in., \$15.90; 10 in., \$17.70; 12 in., \$21.20; 15 in., \$34.50; 18 in., \$44.00.

Discount 65 and 5 per cent.

CONDUCTOR PIPE—Round, Plain and Corrugated, per 100 ft.; 2 in., \$18.40; 3 in., \$22.30; 4 in., \$29.60; 5 in., \$48.00; 6 in., \$58.80.

Discount 65 and 5 per cent.

CONDUCTOR ELBOWS—

Plain or corrugated, price per doz. 2 in., \$5.25; 3 in., \$6.00; 4 in., \$10.50; 5 in., \$24.00; 6 in., \$29.00.

Discount 50 and 10 per cent.

PIPE FITTINGS SELLING IN GOOD VOLUME

Montreal.

A good volume of business is reported by dealers in pipe fittings. Prices show no change and are in effect locally as follows.

PIPE FITTINGS—

Cast iron fittings.....	10%
Plugs, cast iron.....	10%
Do., solid.....	10%
Do., countersunk.....	10+
Bushings, cast.....	15%
Do., malleable.....	15+
Unions.....	30%
Flanged unions.....	10%
Flanged fittings.....	27 1/2%
Dart unions, black, 1/8 to 2 in.....	27 1/2%
Do., 1/8 in., 2 1/2 in., and larger.....	10 and 10%
Do., galv. add to black.....	27 1/2%
Nipples, 1/8 to 4", close and short.....	45%
Do., long.....	50%
Do., 4 1/2 to 8", close and short.....	35%
Do., long.....	40%
Couplings, 4" and under.....	25%
Do., 4 1/2" and larger.....	5%

Malleable Fittings—

Price list effective June 1st, 1922. Discount 63 per cent.

SCRAP MATERIAL MARKET SHOWS IMPROVEMENT

Montreal.

Scrap materials are moving a little more actively, especially during the past week. Dealers are becoming more op-

timistic and better business is expected in the near future.

Prices are low and dealers see no reason why business should not go ahead as soon as a demand for scrap is felt. Current prices are as follows:

SCRAP—

Automobile Tires.....	0 50
Rubber Shoes.....	0 02
Yellow brass.....	0 06 1/2
Red brass.....	0 08 3/4
Light brass.....	0 04 1/2
Scrap zinc.....	0 05
Lead, heavy.....	0 05
Lead, tea.....	0 03
Light copper.....	0 09 1/2
Heavy copper.....	0 11 3/4
Wrought iron, R. Rd. No. 1 per gr. ton.....	14 00
Malleable scrap (ton).....	16 00
Pipe scrap (ton).....	8 50
Heavy melting steel.....	9 50
No. 2 busheling.....	5 00
Boiler plate.....	12 00
No. 1 machinery cast.....	20 00

SOIL PIPE PRICES FIRM AT FORMER LEVELS

Montreal.

A good volume of business has been done in soil pipe and fittings the past two weeks, and prospects are good for a large fall trade. Prices remain unchanged and local discounts are as follows:

SOIL PIPE—

2 and 3 inch.....	20%
4 inch.....	25%
5 and 6 inch.....	20%
8 inch.....	net

FITTINGS—

2 to 6 inch.....	37 1/2%
8 inch.....	net

SALES IN METAL LATH ARE GOOD

Montreal.

Sales in metal lath are reported by dealers to be quite seasonal. Prices remain firm and fail to show any tendency to deviate from the following:

METAL LATH—

	per sq. yd.
Painted—	
26 gauge.....	23c.
24 gauge.....	25c.
32 gauge.....	32c.
Galvanized, 5c. per sq. yd. extra.	

Stove Sales Increased 48 Per Cent.

SALES of stoves and furnaces for this year have been very satisfactory, and with most firms business in these lines has shown much improvement over last year's sales, which sales as a rule ran slightly over those of 1921. One firm in Ontario informed Sanitary Engineer during the past week that, from the first of this year to the first of September, their sales had increased to the extent of 48.02 per cent. over those of last year during the same period.

The stove and range business is now distributed mostly throughout the rural districts with very few coal-burning ranges being sold in the cities. Large numbers of Quebec heaters with ovens are, however, being sold in the cities as well as in the rural and country districts.

The increase in the furnace business has been particularly noticed in reference to sales made in the large towns and cities. Stove and furnace dealers

have not received very much business from the West as yet, but a good late fall trade is anticipated from the Western provinces as a result of the exceptionally fine crops being harvested this fall.

The stove repair business has been very active this year, and a good demand for parts has been felt, though the demand for these lines is not quite up to the exceptional call that was made on these lines two years ago.

Reports go to show that the sale of large steel ranges for the rural districts has dropped off considerably, due to the high cost of these ranges and to the fact that a number of second-hand ranges have been put on the market in exchange for the tortoise type of cook stoves.

On the whole manufacturers of stoves and furnaces are well satisfied with prospects for the future, and believe they are entering on a steady run of business for some time to come.

WROUGHT PIPE PRICES ARE FIRM

Montreal.

Prices on lapweld and butt weld pipe remain firm. Sales in this line are reported as being quite good, with prices still being based on price list No. 59, which was issued some time ago.

WROUGHT PIPE

Price List No. 59. April 24th, 1923.

Size	Standard Butt weld Pipe S/C per 100 feet.			
	Steel Blk.	Gen. Galv.	Wrot. Blk.	Iron Galv.
1/8 in.	6.00	8.00	.....	.....
1/4 in.	4.32	6.30	7.56	9.60
3/8 in.	4.32	6.30	7.56	9.60
1/2 in.	5.53	6.97	7.82	9.35
3/4 in.	6.79	8.40	9.55	11.27
1 in.	9.69	12.07	13.77	16.32
1 1/8 in.	13.11	16.33	18.63	22.08
1 1/4 in.	15.68	19.53	22.28	26.40
1 1/2 in.	21.09	26.27	29.97	35.52
1 3/4 in.	33.35	41.54	.....	.....
2 in.	43.61	54.32	.....	.....
2 1/2 in.	56.12	69.00	.....	.....
3 in.	66.49	81.75	.....	.....
Size	Standard Lapweld Pipe S/C per 100 ft.			
	Steel Blk.	Gen. Galv.	Wrot. Blk.	Iron Galv.
2 in.	24.42	29.60	33.30	38.85
2 1/2 in.	36.27	44.46	50.31	59.09
3 in.	47.43	58.14	65.79	77.27
3 1/2 in.	57.04	69.92	79.12	92.32
4 in.	67.58	82.84	93.74	110.09
4 1/2 in.	78.74	96.52	1.14	1.33
5 in.	91.76	112.48	1.33	1.55
6 in.	1.19	1.46	1.73	2.02
7 in.	1.55	1.90	2.21	2.62
8 in.	1.63	2.00	2.33	2.76
9 in.	1.87	2.30	2.68	3.17
10 in.	2.23	2.83	.....	.....
10 1/2 in.	2.14	2.62	3.04	3.58
12 in.	2.76	3.38	3.91	4.01

PRICES REMAIN STEADY ON SHEETS AND PLATES

Montreal.

Prices are firm on sheets and plates, and fail to show any tendency to deviate from the following levels:

BLACK SHEETS—

10 gauge, base	4 75	5 00
12 gauge	4 85	5 00
14 gauge	4 95	5 10
16 gauge	5 05	5 15
18-20 gauge	5 20	5 25
22-24 gauge	5 20	5 35
26 gauge	5 25	5 40
28 gauge	5 35	5 60

GALVANIZED SHEETS—

	Queen's Head	Fleur de Lis
18-20 gauge	6 90 7 40	6 65 7 15
22 gauge	7 15 7 65	6 90 7 40
24 gauge	7 25 7 75	7 00 7 50
26 gauge	7 50 8 00	7 25 7 75
28 gauge	7 75 8 25	7 50 8 00
Other Brands—		
10 1/2 oz.	7 75	8 00
28 U. S. gauge	7 00	7 75
28 U. S. gauge	7 50	7 75
24-22 gauge	6 85	7 10
20-18 gauge	6 65	6 75
16 gauge	6 50	6 60

Above prices are for 1/2 ton lots in English iron and 1000 lb. lots in American iron with an extra charge of 25c for less quantities. Extra for sheets 3 ft. wide, 28 gauge and 10 1/2 oz. 25c per 100 lbs.

Further extra for sheets 4 ft. wide according to gauge.

TIN PLATE—

20 x 28 x 100 lbs. basis	15 50
20 x 28 IC, 112s	16 00
20 x 28 IX, 112s	18 00
20 x 28 IXX, 56s	11 00
20 x 28 IXXX, 54s	12 00

TERNE PLATE—

20 x 28 IC, 112s, 200 lbs.	14 50
20 x 28 IC, 112s, 214 lbs.	15 00

CANADA PLATE—

Half bright, 60s	5 60
Half bright, 52s	5 50
Blued 52s	5 90
Blued 60s	6 00

WEAKNESS NOTED IN INGOT METAL MARKETS

Montreal.

The metal markets have hardly maintained the firm tone recently shown, with the possible exception of tin. Copper

continues weak and other lines show a slightly lower tendency.

TIN.—After the sharp reaction which occurred last week a recovery took place, and there are rumors of heavy buying in London by a New York syndicate. The general tone remains strong, and higher prices are expected. The local market is firm at 47 1/2 cents per pound.

COPPER.—This metal continues to decline both in London and New York and prices have receded to the low levels of the early months of the year. Support appears to be lacking, and in the absence of any inquiry for domestic consumption, prices are apparently allowed to drift. To what extent this will go is difficult to say, but copper is now at a very attractive level as a purchase. The local market is quiet at 19 1/2 cents for electro, and 19 cents for casting.

LEAD.—The New York market remains steady, but London has declined somewhat, owing to heavy arrivals there. There is no marked tendency in either direction and prices are likely to change very little. The local market is quiet at 8 cents per pound.

ZINC.—The American market is sagging slightly, but this is probably only temporary, and as soon as European buying assets itself there will probably be a recovery in price. The London market remains fairly steady, but naturally they are desirous of buying at as low a price as possible in the U. S. A. The local market is quiet at 9 1/2 cents per pound.

ANTIMONY.—This metal is very dull, and demand is conspicuous by its absence. Local prices are unchanged at 8 1/2 cents for English, and 8 cents for Chinese.

Toronto Markets

TORONTO, Sept. 29.—Local dealers and jobbing firms have noted an improvement in trade during the last two weeks. Firms manufacturing stoves, heaters, and furnaces, report that trade has been much better than last year, one manufacturer reports a 48 per cent. increase up until the present time. Fall prospects are very good for the stove and furnace repair trade.

New and lower prices are in effect on range boilers, some lines of power washing machines and also on pig iron. Price advances are announced on wall and floor registers, black sheets and some lines of scrap materials. New discounts have been issued on several types of pumps.

Good trade is reported in asbestos lines, some firms being very busy on heating plant and pipe covering contracts.

Local collections have undergone a slight improvement.

BLACK SHEETS AT SLIGHTLY HIGHER PRICES

Toronto.

The prices on black sheets have advanced to the extent of about 15 cents per 100 lbs.

Basic cost prices have not changed to any great extent, but the elimination of price cutting on these lines which has been going on for some time, and a good demand being in existence for black sheets, is given as the reason for the stiffening in prices. The new prices are given as follows:

TANK STEEL PLATES—

1/4-in. and heavier, base	3 60
3-16 in.	3 95

BLUE ANNEALED SHEETS—

10 gauge, base	4 50	4 60
12 gauge	4 55	4 65
14 gauge	4 60	4 70
16 gauge	4 65	4 75

BLACK SHEETS—

18-20 gauge	5 45
22-24 gauge	5 50
26 gauge	5 55
28 gauge	5 65

A charge of 25c per 100 lbs. is made for less than case lots. An extra 10c. per 100 lbs. is also charged on sheets 26 in. wide.

ADVANCE IN PRICE OF SIDE WALL AND FLOOR REGISTERS

Toronto.

Floor registers, japanned and common oxidized, which have been selling at 35 per cent. off standard register list for sizes 12 x 15 inches and smaller, have been advanced in price. The discount now in effect is 30 per cent. off

list on these sizes. Larger sizes than 12 x 15 inches take a discount of 35 per cent.

The discount now in effect on side wall registers in above finishes is 30 and 15 per cent. off list.

LOWER PRICES ON SOME POWER WASHERS

Toronto.

Lower list prices are now in effect on Dowsell-Lees electric washing machines, Seafoam and New Century. The Seafoam washer is now listed at \$90 each, and the New Century at \$115 each.

Discount from these prices 25 per cent.

Maxwells have announced a new discount of 30 per cent., which applies to electric and engine driven washing machines, included in their list No. 71, to be effective at once. Prices to be in force after Jan. 1, 1924, will be announced at a later date.

NOTICEABLE DECLINE IN PRICE OF RANGE BOILERS

Toronto.

During the past two weeks prices have been in a very unsettled condition as regards range boilers. This condition was brought about by some price cutting which was going on among manufacturers of range boilers. Prices are somewhat settled now and have been

Copper Selling Below Lowest Production Cost

Copper Production Dependent Largely Upon European Conditions—Little Future Buying Being Done Despite Low Prices

THAT the copper market is very uncertain at the present time, with prices lower than production costs information secured by Sanitary Engineer from C. J. Marsh, vice-president, Standard Underground Cable Co. of Canada, Ltd., Hamilton, Ont. Ordinarily under these conditions large orders would be placed for future delivery, but it is significant that this plan is not being followed. Possibility that the market might remain as it is for some months or reach even lower levels, was pointed to by Mr. Marsh.

European countries were said to be the largest users of copper, and European conditions were governing the world copper situation very largely at present. Were conditions in Europe to show considerable improvement, copper prices would probably react.

While Western conditions have not been favorable in this line of business

since 1920, Mr. Marsh is of the opinion that a considerable improvement is now taking place. He believes that even if a comparatively high price is not secured by Western farmers for their crop, that the monetary value of the crop distributed throughout the sparsely-settled districts of the West should bring about lessening of the credit strain and improve business conditions.

Concerning the application of the new sales tax, Mr. Marsh pointed out that bookings for the new year were taken subject to tax conditions prevailing at that time.

There are two mills in Canada producing copper rods, one at Brockville and the other in B. C. Copper rods enter Canada duty free where they are to be used exclusively for wire and cable work, whereas ingots for tube and bar work are dutiable.

established at substantially lower levels than was the case when the last issue of Sanitary Engineer went to press. A new net price of \$9.50 each has been established on the 30-gallon standard boiler; on all other lines of standard boilers a discount of 45 per cent. is in effect, and on the extra heavy weight a discount of 40 per cent. has been made effective.

A net price list is given herewith which quotes the new net prices now being quoted to the trade.

RANGE BOILERS—	St'nd'rd	Ex. He'vy
5 gallon	7 43	....
10 to 15 gallon	7 70	....
18 gallon	8 25	....
25 gallon	9 08	....
30 gallon, special net price on standard	9 50	10 50
35 gallon	11 28	12 30
40 gallon	12 52	13 65
52 gallon	20 90	22 80
66 gallon	33 42	36 45
82 gallon	40 70	44 40
100 gallon	56 65	61 80
120 gallon	64 35	70 20
144 gallon .....	....	98 40
168 gallon .....	....	112 20
192 gallon .....	....	126 00
EXTRAS—	Add	....
For horizontal tapping	1 15	....
1" Special for gas heater	1 00	....
Each extra 3" tapping	3 00	....
Each extra 2" tapping	1 75	....

The above prices are net and are based on standard range boiler list. Standard at 45 per cent. off and ex. heavy at 40 off, with the exception of 30 gal. standard, on which there is a special net price of \$9.50.

PIG IRON PRICE DECLINES \$2 PER TON

Toronto.

The pig iron price is off \$2 per ton. The new price is \$31.30, in place of \$33.30, which has been in force during the last few weeks. This revision in prices to lower levels has brought out quite a volume of inquiries, which have been held back for some time. Requests for immediate shipment of orders indi-

cate that buyers have been holding off as long as possible.

Stocks are reported to be small and the continued high rate of output as compared with consumption does not tend to strengthen the price structure in any way.

PIG IRON—(Price per ton)—
In ordinary quantities 31 30

NEW PRICES ISSUED ON SOME PUMP LINES

Toronto.

New lists are issued on prices covering Maxwells' pumps, effective immediately.

List No. 202, covering pumps and dated June 15, 1923—Net list.

Hydro wing pumps—discount 10 per cent.

Prices on above lines to be in effect after the first of the new year will be issued at a later date.

SCRAP PRICES AFFECTED BY EUROPEAN SITUATION

Toronto.

Some lines of scrap materials have advanced in price during the last two weeks, higher levels being reached on steel turnings, No. 1 cast iron, stove plate, heavy lead, tea lead, scrap zinc, and rubber boots and shoes. Conditions at the present time in the scrap materials market are noticeably slow, as far as trading is concerned. Local dealers in these lines attribute this situation to the unsettled condition of political affairs in Europe existing at the present time. Dealers anticipate a further advance in scrap prices as soon as there is any direct evidence that a settlement is under way as regards occupied German territory. It is expected that this ad-

vance in prices will be of a general nature and that all lines will be affected.

Prices existing at the present time are as given herewith.

SCRAP MATERIALS— f.o.b. Toronto
Gross Tons—

Scrap Iron	
Heavy melting steel	11 00
Scrap pipe	7 00
Steel turnings	9 50
Malleable scrap	16 00
Rails, scrap	12 00
Net tons—	
No. 1 cast	19 00
Stove plate	16 00
Car wheel (std.)	15 00
Scrap Metals	
Heavy copper wire	12 00
Light copper	9 00
No. 1 composition	9 00
Red brass turnings	8 00
Light brass	4 50
Heavy yellow brass	6 50
Heavy lead	5 25
Tea lead	3 25
Scrap zinc	5 00
Aluminum sheet and clippings	14 00
Aluminum cast	13 00
Hard lead	4 25
Scrap Rubber	
Boots and shoes	1 75
High rubber boots	1 50
Auto tires	0 25

GALVANIZED SHEETS SELL AT \$6.50 TO \$6.65 BASE

Toronto.

No changes are noted in the prices on galvanized sheets. A slight stiffening in basic markets has been observed recently, but it is evident that all of the metal purchased last winter is not consumed and some price cutting is still in existence. Current quotations are as follows:

SHEETS, GALVANIZED—		per 100 lbs.
Premier and Apollo Brands—		
Premier and Apollo Brands—		
10½ oz., 3 ft. wide	7 25	7 40
10½ oz. narrower	7 05	7 15
28 U. S. gauge, 3 ft. wide	6 85	6 90
28 U. S. gauge, narrower	6 50	6 65
26 U. S. gauge	6 20	6 35
22 and 24 U. S. gauge	6 05	6 20
18 and 20 gauge	5 90	6 05
16 U. S. gauge	5 75	5 90
12 and 14 U. S. gauge	5 60	5 75

F.o.b. and delivered in Toronto.

An extra 20c. per 100 lbs. is charged for Keystone and Premier brands copper-bearing sheets.

Queen's Head	
28 gauge, base	7 25
26 gauge	6 85
24	6 55
22	6 40
18 to 20 ga.	6 00
Fleur de Lis	
28 gauge base	7 00
26	6 60
24	6 30
22	6 15
18 to 20 ga.	5 75

ASBESTOS PRICES FIRM; TRADING STEADY

Toronto.

Trading during the past two weeks has been very active in all lines of asbestos products, including stove cement, dry stove lining, pipe coverings and asbestos paper or felt. Prices on these lines are firm and unchanged. Current discounts are given herewith.

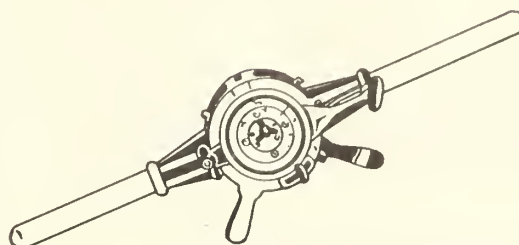
ASBESTOS PRODUCTS—

Pipe Covering—	
Air cell, 4 ply	50 per cent. off list.
Air cell, 3 ply	55 per cent. off list.
Air cell, 2 ply	57½ per cent. off list.
Boiler Covering	\$1.50 — \$2.00 per bag.
Asbestos paper or felt	8.25 \$9.00
Magnesia pipe covering	less 40 per cent.
Magnesia pipe covering, small lots, less 35 per cent.	

What class are you in



Ancient or Modern?

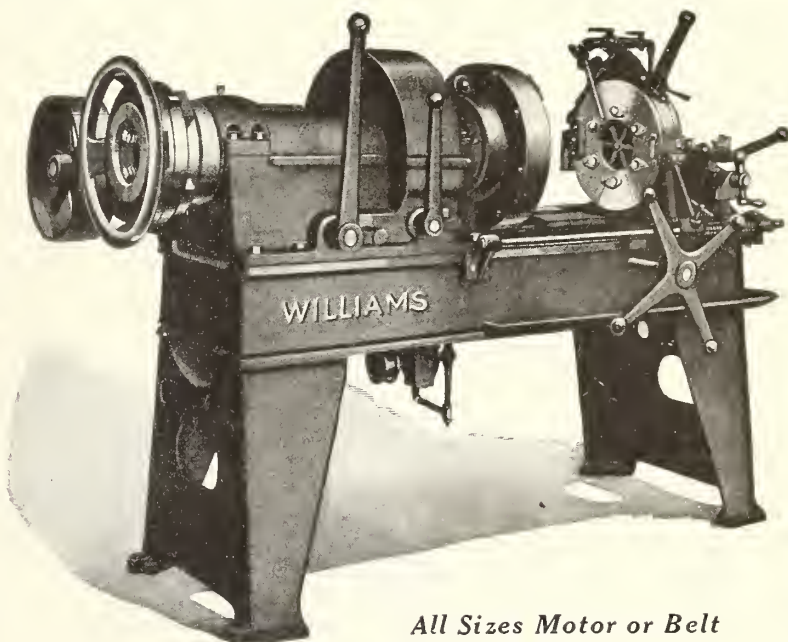
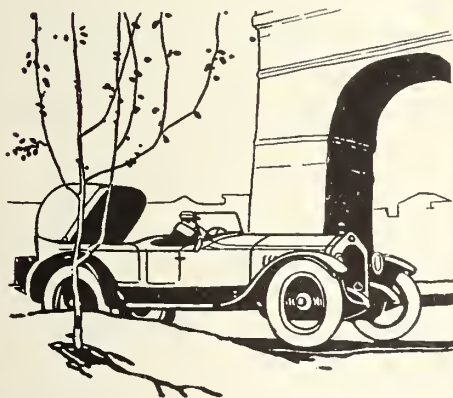


The Best is Always the Cheapest

IF YOU are in the Modern Class you have attained the highest degree in Speed and Workmanship—that's saying something. —If you are in the Ancient Class you no doubt realize you are in a rut, but can't seem to get out. It's easy though, for Williams have a time payment plan which enables you to pay for the Machine as it earns for you—

Throw away your Hand Stocks—cut perfect Threads—cut-off your Pipe at high speed and **SAVE MONEY** by installing a

WILLIAMS PIPE THREADING MACHINE



All Sizes Motor or Belt

Williams Tool Corporation of Canada

American Plant, Erie, Penn.

Brantford, Ontario

LIMITED

ENAMELED WARE PRICES FIRM LOCALLY

Toronto.

The thirty per cent. discount is still firmly maintained on enameled ware.

Some centres are undergoing cutting in this line, and prices are somewhat unsettled, but locally this is not the case.

The following are some of the list prices on common lines:

ENAMELED WARE—

Sinks, flat rim—	1 only	2 only	3 only
16 x 24	\$ 7 50	\$ 7 40	\$ 7 30
18 x 30	8 70	8 60	8 50
20 x 30	9 90	9 80	9 70
Bath tubs, roll rim, 4, 4½, 5 feet, 24 to 30 in. wide			51 40
Bath tubs, 5½ feet			57 10
Lavatories—			
17x19 in. Apron F139 or P4045			15 30
18x24 in. Apron F154 or P3845 or P3847			23 60
18x21 in. Apron F169 or P4205			17 60
17x19 in. Roll rim. F241 or P4345			12 60
Less 30 per cent.			

CAST AND MALLEABLE PIPE FITTINGS SALES ACTIVE

Toronto.

Good sales are recorded for the past two weeks on both cast and malleable lines of pipe fittings.

The added activity is a result of the number of heating contracts and heating repair jobs now under way. Discounts now in effect are as follows:

PIPE FITTINGS—Cast Iron—

Elbows, tees, etc., standard sizes	10%
Plugs, solid, countersunk and std.	10%
Bushings	15%
Flanged unions	17½%
Flanged fittings	20%
Drainage fittings, black	22½%
Do., galvanized	27½%
C. I. Stop cocks, up to 4"	25%
C. I. Stop cocks, up to 4" with brass plug ..	15%
Ringhangers	30%

MALLEABLE FITTINGS—

Bushings	15%
Hex. nipples, R. & L.	25%
Steam cock wrenches	30%
Union ells and tees	40%
Boiler fittings (old style)	32½%
Do., (new style)	27½%
Lip unions, all sizes	30%
Dart unions, blk. up to 2"	27½%
Dart Unions, blk. ½" also 2½" and over	10 and 10%
Wrought nipples to 4" close & short	45%
Wrought nipples up to 4" leng.	50%
Wrought nipples, 4½ in. and up long	40%
Wrought nipples, up to 4" close & short ..	45%
Do., 4½" and up, close and short	35%
Malleable fittings, sold from price list, less	63%

BOILER TUBE SALES HAVE HAD ACTIVE SEASON

Toronto.

A continued activity has been in evidence during the summer and is continuing still.

No changes in price have been made, two inch diameter lapweld sell at twenty cents per foot. Prices on all sizes are given herewith:

BOILER TUBES—

	Seamless	Lapweld
1 inch	20 00	....
1½ inch	22 00	....
1½ inch	21 00	....
1¾ inch	24 50	24 00
2 inch	21 50	20 00
2¼ inch	24 50	23 00
2½ inch	29 00	24 50
3 inch	34 00	31 00
3½ inch	39 50	35 50
4 inch	50 00	45 00
Prices per 100 ft. f.o.b. Montreal and Toronto.		

PIPE PRICES ARE FIRM AND UNCHANGED

Toronto.

Net price list No. 59 is still in effect on standard butt weld and lapweld pipe.

These prices are being maintained firmly. A copy of the standard pipe list is given as follows:

Standard Butt Weld Pipe S/C per 100 feet.					
Size	Steel Blk.	Gen. Galv.	Wrot. Blk.	Iron Galv.	
½ in.	6.00	8.00	....	....
¾ in.	4.32	6.30	7.56	9.60	
1 in.	4.32	6.30	7.56	9.60	
1½ in.	5.53	6.97	7.82	9.35	
2 in.	6.79	8.40	9.55	11.27	
2½ in.	9.69	12.07	13.77	16.32	
3 in.	13.11	16.33	18.63	22.08	
3½ in.	15.68	19.53	22.28	26.40	
4 in.	21.09	26.27	29.97	35.52	
4½ in.	33.35	41.54	....	....
5 in.	43.61	54.32	....	....
6 in.	56.12	69.00	....	....
8 in.	66.49	81.75	....	....
Standard Lapweld Pipe S/C per 100 ft.					
Size	Steel Blk.	Gen. Galv.	Wrot. Blk.	Iron Galv.	
2 in.	24.42	29.60	33.30	38.85	
2½ in.	36.27	44.46	50.31	59.09	
3 in.	47.43	58.14	65.79	77.27	
3½ in.	57.04	69.92	79.12	92.32	
4 in.	67.58	82.84	93.74	110.09	
4½ in.	78.74	96.52	1.14	1.33	
5 in.	91.76	112.48	1.33	1.55	
6 in.	1.19	1.46	1.73	2.02	
7 in.	1.55	1.90	2.21	2.62	
8 in.	1.63	2.00	2.33	2.75	
9 in.	1.87	2.20	2.68	3.17	
10 in.	2.23	2.83	....	....
16 in.	2.14	2.62	3.04	3.58	
10 in.	2.76	3.38	3.91	4.61	

COTTON WASTE PRICES FIRMLY MAINTAINED

Toronto.

Cotton wastes are selling in seasonable quantities. Prices are very firm on these lines and are quoted as follows:

COTTON WASTES—

XC	015½
XXX extra	0 20
X. xrand	0 18½
XLCR	0 17
X. Empire	0 15½
X. press	0 14
Colored, No. 1	0 14½
No. 17	0 14½
No. 1A	0 13½
No. 1B	0 11½
Fancy	0 15½
Lion	0 14
Standard	0 12½
Popular	0 10½
Keen	0 08½
X	0 17
Above lines subject to trade discount for Cream, poli-hing	0 24

BRASS GOODS AND LAVATORY FITTINGS PRICES FIRM

Toronto.

Prices are being firmly maintained on brass goods and lavatory fittings. Fair and seasonable sales have been experienced in these lines. Prices now being quoted are as follows:

BRASS GOODS—

BATH COCKS (Compression)—

No. 3825 Compression, complete with tails	3 75
No. 4 Std. Comp. Double Bath, No. 3829F	4 51
Ditto with China Index, No. 3830F	4 51

BATH COCKS (Quick Opening)—

Brass handle on top, No. 3850 F	4 59
China handle on top, No. 3850 F	4 72
Quatern Top China Hdle A3200	4 98
Brass handle on side, No. 3851F	4 95

(less Jewell's cup)

China handle on side No. 3852 F	5 00
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(less Jewell's cup)

Quatern Side China Hdle. A3500	5 45
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A2395 Mueller type Shower Faucet	9 25
--	------

¾ in. N. P. Brass Supply Pipes	2 20
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½ in. N. P. Brass Supply Pipes	2 30
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½ in. Galvanized Iron Nickel Plated Supply Pipes	2 05
--	------

1¼ or 1½ Overflow and Waste 18 gauge, N. P. on rough	3 00
--	------

1* T.B.L. Overflow and Waste, 18 gauge, N. P. on the rough	4 00
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LAVATORY FITTINGS

Riley Basin Cocks China Index, per pair	7 00
Riley Jr. Basin Cocks, China Index, per	

pair	6 00
Adanac Basin Cocks, Brass Handle, No. 3632, per pair	4 68
Adanac Basin Cocks, China Handle, No. 3635, per pair	5 20
Quatern Basin Cocks, side China Hdle, per pair, A2000	5 20
Quick Opening Basin Cocks, Brass Hdle. No. 3630, per pair	3 70
Quick Opening Basin Cocks, China Handle, No. 3633, per pair	4 28
Quatern Basin Cocks, Top China Hdle. per pair, A1900	4 28
Fuller No. 0 Basin Cocks, Brass Handle, No. 3650, per pair	4 10
Fuller No. 0 Basin Cocks, China Handle No. 3651, per pair	5 04
Midget No. 0 Basin Cocks, No. Index, No. 3623, per pair	3 10
Midget No. 0 Basin Cocks, With Index, No. 3623, per pair	3 10
¾ in. N.P. Brass supplies to wall or floor ¾ in. Galvd. supplies N. P.	2 05
1¼ in. N.P.S. Traps to floor No Vent 20G No. 4458	3 46
1¼ in. N.P.S. Traps to floor with Vent 20G No. 4462	4 53
1¼ in. N.P.P. Traps, No Vent 20G No. 4450	2 74
1¼ in. N.P.P. Traps No Vent Toronto By-law No. 4450	2 97
1¼ in. N.P.S. Traps with Vent Toronto By-law No. 4462	4 98
1¼ in. N.P.S. Traps with Vent Toronto By-law No. 4462	6 67
2 in. N.P.S. Traps with Vent Toronto By-law No. 4462	14 00
Patent Overflow basin plugs	0 71
Pop up waste	5 00
Unique waste China Knob	5 50
Unique waste China Index	5 00
1¼ in. Deep Seal Trap No Vent	3 75
1½ in. Deep Seal Trap No Vent	6 00
1¼ in. Elliptic Trap	6 50
1½ in. Elliptic Trap	9 00
Whirlpool N.P. Traps list prices less	15%

COMPRESSION GOODS PRICES FIRMLY MAINTAINED

Toronto.

No changes have been made in prices of compression goods. Quotations are as follows:

COMPRESSION GOODS—

Compression stops No. 3450 brass fin., ½ inch, each	0 86
Compression stops, No. 3450, N.P., ½ inch, each	1 01
Lavatory stops, No. 3466, N.P., ¾ in., ea. 1 21	
Do., No. 3468, N.P., ¾ in., each	1 21
Compression stop and wastes, No. 3483 ½ inch	0 89
Compression stop and wastes, ¾ in. 1 29	
Brass finished bibbs, ½ in., No. 3000, each	0 86
N.P. finished bibbs, ¼ in. No. 3000, ea. 1 01	
Brass hose bibbs, ½ in. No. 3001, ea.	0 99
N.P. hose bibbs, ½ in., No. 3001, ea.	1 14
Loose flange bibbs, ½ in. N.P. No. 3208	1 43
Loose flange hose bibbs, N.P. ½ in. N. P. No. 3029	1 56
Compression Bibbs No.'s 3001-3041 .....	.48% Off
Compression Bibbs No.'s 3053-3058 .....	.43% Off
Compression Bibbs, No.'s 3084-3085 .....	.49% Off
Quick Opening Comp. Bibbs, 3100-3115 .....	.45% Off
Quick Opening Comp. Bibbs, 3116-3119 .....	.45% Off
Ball or roller bearing, self-closing, 3338-3850 .....	.40% Off
Stops also stop and waste cocks—	
Compression, 3450-3453 .....	.48% Off
Compression, 3462-3463 .....	.43% Off
Compression, 3466-3479 .....	.45% Off
½ inch as 3483 listed at \$32.40 doz. less	67%
Urinal cocks, compression, 3500-3508 .....	.25% Off
Sill and boiler drain cocks, 3560-3568 .....	.50% Off
½ and ¾ list only used.	
Add 10c net for N. P. or finished.	
Boiler Drain cocks, No. 3571, net	0 72
Bath cocks, quick opening	53%
Bath cocks, compression, plain Hdle.	45%
Bath cocks, compression, indexed Hdles.	45%
Basin cocks, quick opening	50%
Basin cocks, compression	36%
Flatway stop and waste cocks, standard	56%
Roundway stop and waste cocks, std.	42%
Brass steam cocks, standard, ¼ in.	25%
Radiator valves, standard .....	.55/.25%
Do., removable discs .....	.55/.25%
Globe, angle and check valves, std.	25%
Gate or straightway	25%
Emco globe valves	33%
Emco check valves	33%
Jenkins globe, angle, check and swing check	plus 15%
Jenkins gate or straightway	plus 11%
Jenkins iron body, globe and angle plus	10%
Jenkins iron body, gate	12%
N. P. "O" and "S" traps	34%

Long and Satisfactory Service is Assured with **JENKINS RADIATOR VALVES**



Fig. 490.
Steam Radiator.
Valve, Angle
screwed.



Fig. 493.
Hot Water Radiator,
Valve, Angle
Screwed.

Ordinary radiator valves cannot compare with these Jenkins models.

Made of virgin metal they are much heavier and stronger and embody the well known Jenkins Standard in design, material and workmanship.

These Radiator Valves can be supplied in either screwed or male union ends. The Angle Patterns, Figs. 490-1, are fitted with genuine Jenkins renewable composition discs for either steam or hot water service which ever may be desired.

The Quick Opening type, Figs. 493-4, which are recommended for Hot Water Heating only, are fitted with a plug or cylinder of suitable metal. Both types are equipped with polished, black fibre composition wheels.

Catalog No. 9—free on request—describes every Jenkins Valve in detail. May we mail you a copy?

Jenkins Bros., Limited

Head Office and Works

103 St. Remi St., Montreal

SALES OFFICES: Toronto, Vancouver.

EUROPEAN BRANCH: London, W.C. 2, Eng.

FACTORIES: Montreal, Bridgeport, Elizabeth.

Always marked with the "Diamond"
Jenkins Valves
SINCE 1864

FREE!

*SMOOTH-ON No. 3 — for making
perfect screw-thread joints*

For _____

*if you fill in here
and return this tag*



SMOOTH-ON No. 3 is much better than ordinary screw-thread joint fillers.

Joints made with Smooth-On No. 3 stay tight because the metallic iron body can't dry out or shrivel from heat or time. Yet the joint can be taken apart if line changes become necessary.

In order that you may know this as well as we do, we urge you to fill in the tag as requested above and return so that we can send you the free sample.

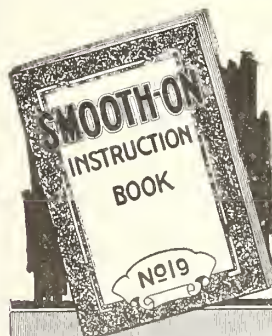
You can get more at your dealers in 1, 5 and 10-lb. gray-labelled tins, or, if he is out of stock, send us his name and we will see that you are supplied.

The Canadian Asbestos Co.

Dept. 60, Montreal, Que.

Get this book Free!

This 144-page book of simple directions and diagrams will post you well on Smooth-On, where to use each grade, how to apply for best results and what to expect from the finished job. Mailed free if you return the tag.



Do it with **SMOOTH-ON**

STEEL AND IRON PRICES INCLINED TO BE WEAKER

Toronto.

There has been no shading in basic prices of iron and steel, notwithstanding the fresh weakness in the pig iron market during the past two weeks. Leading producers have not lowered any of their prices. Stocks in hands of consumers are reported to be low. Since Sept. 1 the volume of new business has shown marked improvement.

However, since the late spring, operations have been declining and are now about 75 to 85 per cent. of full capacity, as against 92 to 97 per cent. as was the case in the spring.

Orders are now obtainable from the mills from three to five weeks after placing, and production is still very much in excess of consumption.

IRON AND STEEL—

	Per cwt.
Bars, steel .....base	3 75 3 90
Bands, 3-16 in. and lighter ..	4 25 4 50
Hoops heavier than 1 in. x 20G.	5 50
Hoops lighter than 1 in. x 20G.	6 00
Shapes, smaller than 1 in.	4 00
Sheets Galv., base 6 65	
Sheets, black, base 5 60 5 75	
Sheets, blue, base 4 60	
Plates, ¼ in. and heavier .. .	3 75 4 00
Plates 3-16 in. 4 15 4 40	
Cold rolled steel, rounds 4 15	
Sleigh shoe steel 4 10 4 15	
Cold rolled flat square, Hex. 5 75	
Tool steel, high grade 30 00	
Drill steel 18 50	
Crucible cast sheet 30 00 35 00	

LEAD AND ZINC TRADING SEASONABLY ACTIVE

Toronto.

The sales of lead and zinc have been quite active. No changes have occurred in prices. Current quotations are as follows:

LEAD AND ZINC GOODS—

Lead pipe, per 100 lbs., up to 2".....	14 50
Do., 2" to 8".....	15 50
Do., 8" and over.....	16 50
Lead waste, per 100 lbs.....	15 50
Note—Lead pipe is subject to a discount of 10 per cent.	
Lead traps and bends 15%	
Lead wool, lb. 0 14½	
Lead sheets, 2½ lbs., sq. ft. per lb.....	0 12½
Lead sheets, 3 to 3½ lbs., sq. ft. lb.....	0 11 9 11½
Do., 4 to 8 lbs., sq. ft. lb.....	0 10 0 11½
Cut sheets, ¾ c. per lb. extra.	
Cut sheets, to size, 1c. per lb. extra.	
Solder, guaranteed, lb. 6 30	
Do., strictly, lb. 0 29	
Do., commercial 0 26½	
Do., wiping 0 27	
Do., wire 0 34½	
Zinc sheets, casks, lb..... 0 11¾ 0 12¼	
Do., do., less, lb..... 0 12¼ 0 13½	

PRIMARY INGOT METAL MARKETS WEAKER

Toronto.

The sudden drop in the London copper prices after the steady advances recently served to unsettle the market recently, served to unsettle the market a number of buyers to withdraw, some of whom were negotiating the purchase of fair tonnages. The result was that a very quiet market has supervened. Copper prices, though unchanged locally, are at a very low level but should any improvement occur in the Ruhr situation, better business is expected in basic markets as well as higher prices.

Lead, which has been weak of late, made a recovery this week and on Thursday, the 27th, was the only metal

that advanced in price on the London, Eng., market.

Local prices on all lines remain the same as formerly noted. Prices are given herewith.

INGOT METALS—

Copper \$18.00 to \$19.00; Tin \$45.00 to \$46.00; Lead \$8.00 to \$8.25; Spelter \$9.00; Antimony, \$8.25 to \$8.50; Aluminum, \$23.00 to 25.00.

GROUND KEY WORK SELLING BRISKLY

Toronto.

The existing prices and discounts on some lines of ground keys, etc., are given herewith:

GROUND KEY WORK—

Nos. 3954-3969	56% Off
Nos. 4031-4036	45% Off
Nos. 4043-4048	37% Off
Nos. 4049-4054	37% Off
Flatway stops, Iron Pipe, rough, No. 3968, ½ inch	0 77
Flatway stops, and waste, No. 3969, ½ inch	0 79

Winnipeg, Man.

WINNIPEG, Sept. 29.—Fall business is now commencing and dealers generally are looking for an improvement in all lines. The crop is now moving and it is having a stimulating effect in trade, as purchasers are buying in larger quantities. Prices which have been in effect for some time back have been maintained almost without exception during the past two weeks.

Collections also are showing a slight improvement.

AUTOMATIC FLUSH VALVES ADVANCE IN PRICE

Winnipeg.

A slight advance is recorded on Emco automatic flush valves. Size 1½ inch, for 3 stalls is quoted at \$8.75 each.

REVISION IN DISCOUNTS ON BRANCH TEES

Winnipeg.

There is a revision on discounts on branch tees, and quotations are list price plus 10 per cent.

COMPRESSION STOP COCKS TAKE LOWER LEVELS

Winnipeg.

Lower prices are in effect on compression stop cocks. Nickel-plated with cross handles are quoted at \$28.80 per dozen, less 42 per cent.

CORRUGATED SHEET PRICES REMAIN STEADY

Winnipeg.

Prices on corrugated sheets remain steady. Dealers locally report a fair amount of activity.

PIPE FITTING SALES CONTINUING STEADY

Winnipeg.

A seasonable volume of business is being done in pipe fittings with local prices continuing steady.

SEASONABLE DEMAND EXISTS FOR CLOSET GOODS

Winnipeg.

There is a seasonable demand for all lines of closet goods. Prices remain

BATH FITTINGS HAVING GOOD LOCAL SALE

Toronto.

Good sales have been made locally in bath fittings. Prices are as formerly quoted.

BATH FITTINGS—

N. P. brass handles or indexed, No. 3825	3 78
Indexed, china button, No. 3830.....	4 51
Deep Seal Por. S.N.P. traps, no vent....	3 55
Waste and overflows, 19 ge. 1½ in. T.B.L.	4 00
Do., 19 ge. 1¼ in. country	3 00

PLUMBERS' OAKUM HAVING GOOD SALES

Toronto.

The following prices are those being quoted to dealers at the present time on three lines of oakum:

OAKUM—	Per 50 lb. bale
Plumbers' Spun No. 1	3 20
Navy Spun No. 1.....	7 50
Navy Unspun No. 1	7 00

steady, no change having occurred during the last couple of weeks.

SOIL PIPE AND FITTING PRICES CONTINUE FIRM

Winnipeg.

Sales in soil pipe and fittings are reported quiet by local dealers. Prices show no tendency for any change.

TRADING IN RANGE BOILERS SHOWS IMPROVEMENT

Winnipeg.

The market continues steady, and trading is reported as showing an improvement. There are no changes in the quotations on range boilers.

SEASONABLE DEMAND FOR BOILER STANDS

Winnipeg.

There is a seasonable demand for range boiler stands and former prices in effect are well maintained.

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Winnipeg.

Sales in eavestrough and conductor pipe are reported quiet, and local prices remain steady, with no change noted.

PRICES REMAIN STEADY ON SHEETS AND PLATES

Winnipeg.

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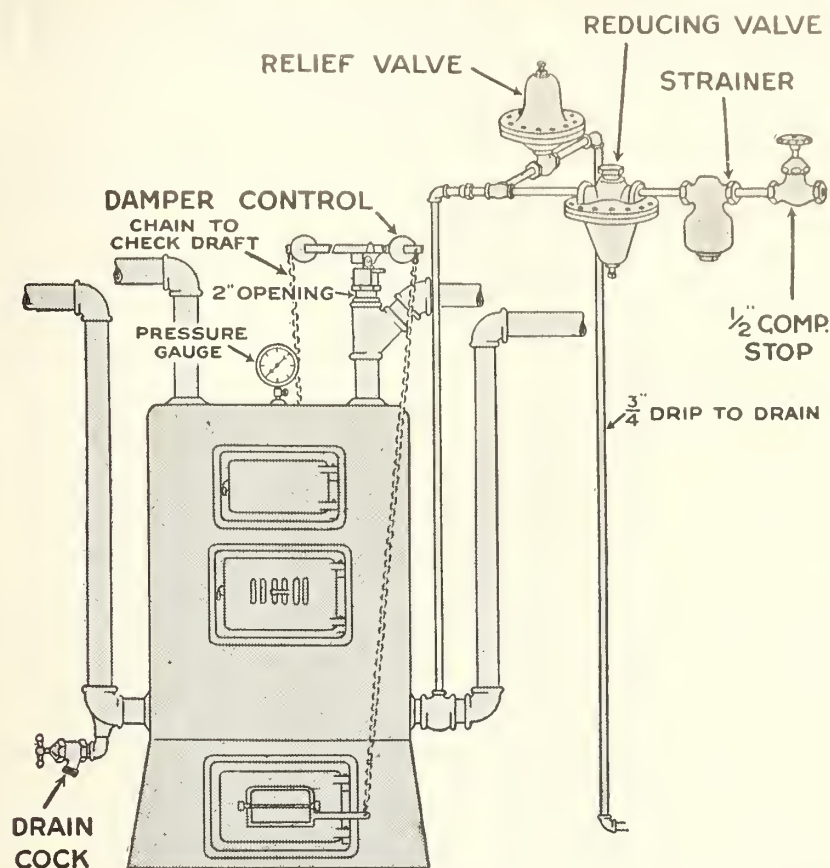
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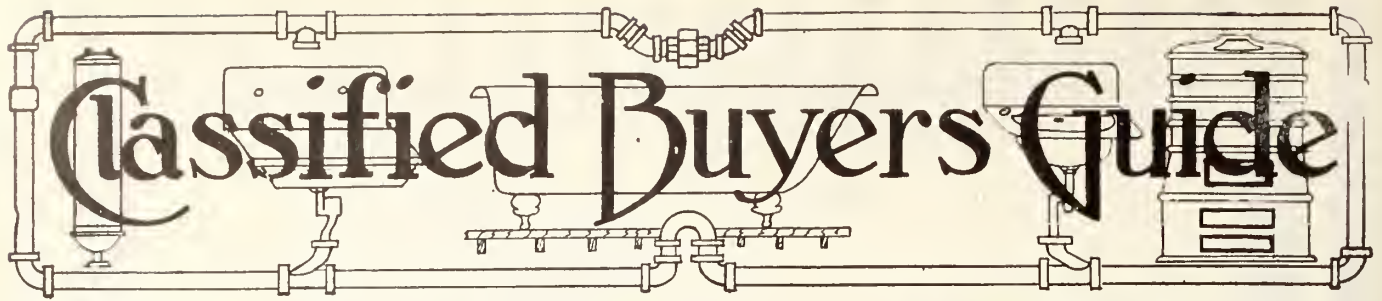


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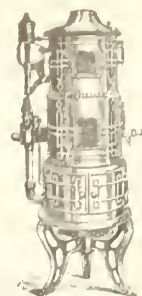
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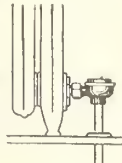
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Toronto - Ontario

Manufacturers of a popular line of Heating Specialties.

Halifax Vancouver Winnipeg Ottawa Montreal
Calgary London: 18 St. Thomas St., S. E. 1

A RANGE BOILER WITH UNUSALLY FINE FEATURES

BRAZED AND RIVETTED

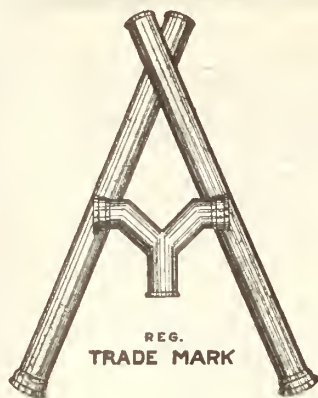
Seams are heavily rivetted and carefully brazed. Metal of substantial weight and finest quality; thoroughly galvanized.

Costs a trifle more than an ordinary quality range boiler but well worth the difference. Gives a lifetime of service without repairs or replacements.

In a word, it is a "Toronto Hardware Manufacturing Company" Product, staunchly built, carefully tested and inspected, and worthy of our best traditions.

Through Your Jobber

TORONTO HARDWARE MANUFACTURING CO. LIMITED



USE

TESTED Soil Pipe

IT COSTS NO MORE AND YOU KNOW THE JOB IS RIGHT

Manufactured by

FORWELL FOUNDRY, LTD.

KITCHENER, ONT.



Easy to Install



Style R

Does not require accurate placing of anchor bolts—the ONLY hanger that is adjustable for height and lateral position. Only one bolt per hanger.

For ANY style of radiator, and ANY type of wall construction. Out of sight when installed.

Ask your jobber or write us.

Healy-Ruff Co.

Dept. 23, Minneapolis, Minn.

TRADE

RUNWELL

MARK

SEMI-ROTARY WING PUMPS

British
Manufacture



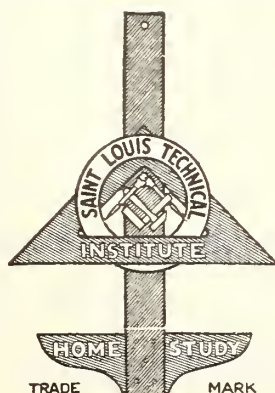
Ask your
Jobber to
supply you
with these
Pumps.

Representatives:

BRITISH COLUMBIA; U.S.A.—WASHINGTON, OREGON, CALIFORNIA
FRANK RAW & CO., 325 Howe St., Vancouver, B.C.

MANITOBA, SASKATCHEWAN, ALBERTA:
FREDERIC SARA & CO., Calgary.

ONTARIO, QUEBEC, MARITIME PROVINCES:
UNIVERSAL SUPPLIES, LTD., 212 Coristine Bldg., Montreal



TRADE

MARK

Are These The Opportunities You're Looking For?

Fan Heating and Ventilating Engineering is the pinnacle of all other forms of heating, and of all branches of steam fitting and sheet metal work. It prepares you for:

1. For Employers it enlarges their business opportunities 100%.
2. Employees it raises to Foremanship of a large shop.
3. Or as Designing Engineer of some large Heating Contractor.
4. As an intelligent Salesman of Heating Appliances.
5. As Chief Engineer with a Heating or Furnace Manufacturing Company.
6. Later a Consulting Engineer to Architects and Building Contractors, etc.

Which of These Are You Working for?

Full Information Free.

[] Fan Heating and Ventilating Engineering. [] Sheet Metal Design and Pattern Drafting.

[] Business Management, for office folks.

Select Your Course.

ST. LOUIS TECHNICAL INSTITUTE

4543 Clayton Avenue

O. W. Kothe, Prin.

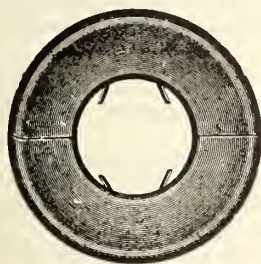
St. Louis, Mo.

Quality



Service

The Greatest Value Obtainable in Ceiling Plate



TOP VIEW No. 10.

Our No. 10 Split Ceiling Plate can be attached to mains and risers at the very last, and is not exposed during completion of a building on the floors, thereby making an attractive finish. Made in all sizes from 1-1 inch to 6 inches inclusive.

The No. 10-A Narrow Flange Plate is a steel hinged plate flange 3-4 inch wide. Highly finished. Especially designed for twin connection "narrow." Made in sizes from 1-2 to 2 inches inclusive. Write for catalogue showing our complete lines of specialties.

GEM NO. 4 AUTOMATIC AIR VALVE

The best brass possible to obtain is used and greatly preserved against corrosion from plating acids because they are nickel plated before being assembled. This valve is simple to adjust and works automatically.



Gem No. 4.

The Beaton & Cadwell Mfg. Co.

New Britain, Conn.

Eastern Agents: J. R. DEVEREAUX & CO.,
602 New Birks Bldg., Montreal.

Western Agents: A. E. HINDS & CO., Galt
Building, Winnipeg.

AMES BROS., 325 Howe St., Vancouver,
B. C.

Ontario Agents: L. N. VANSTONE, 8 Wel-
lington St., E., Toronto, Canada.

CHRISTIE UNIT SYSTEM SEPTIC TANKS

Convenience for ALL. Thousands of homes can be modernized. Any place where there is NOT a Public Sewer CHRISTIE'S UNIT SYSTEM SEPTIC TANK is the only correct method of disposal.

HEALTHY, CONVENIENT, ECONOMICAL

Made of Reinforced Concrete. Can be shipped anywhere. Easy to install. Low in price. Both syphon and overflow type. No job too small. None too large. We have a type for both heavy and light soils.

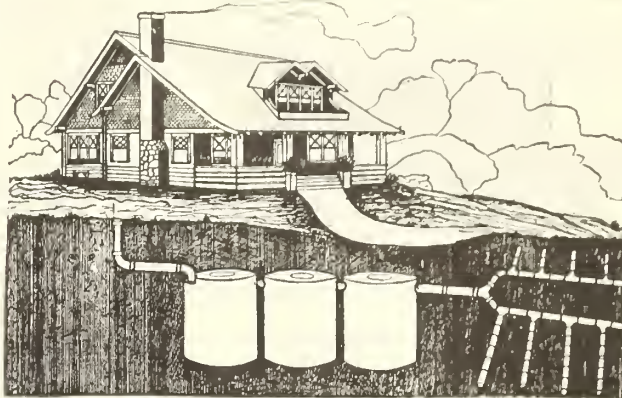
HOMES, SCHOOLS and SUMMER HOUSES.

Write for catalogue and dealers' price list.

Manufactured By

Christie Concrete Products Co.

Lindsay, Ontario



PATENTED

TORONTO

ONTARIO WIND ENGINE & PUMP CO. LIMITED

Water Service Systems "A Size for Every Sale"

NOW is the time to sell the greatest of all modern conveniences — water, **under pressure**, wherever and whenever it is required.

"Toronto" Water Service Systems are absolutely automatic, dependable and quick in operation. May be operated by electric motor or wind-mill. Made in different styles and sizes to meet every need. Hand outfits also furnished.

Get our attractive literature and dealer proposition immediately.



Ontario Wind Engine & Pump Co., Ltd.

85 Atlantic Ave., Toronto

Montreal Winnipeg Regina Calgary

TRIMO

A Winner Always



The "Trimo" Wrench, with Steel Frames, that do not break, and Nut Guards that protect the adjusting nut is a winner.

Has insert jaw in handle, replaceable when worn, saving the handle. A hidden spring always in place. Made in both wood handles and steel handles.

Trimont Manufacturing Co.

55-71 Amory Street

Roxbury (Boston), Mass., U.S.A.

CANADIAN REPRESENTATIVE

George P. Fraser, 28 Temple Ave.

TORONTO

WANT ADS

If you want a buyer, clerk, salesman, traveler, position, you can reach the best men in the trade through these columns.

If you wish to buy or sell a business, or dispose of overstocks, you can reach a larger number of sanitary engineers through this page than in any other way.

Rates (payable in advance) 2 cents per word. An additional charge of 10 cents for each insertion is made when Box Number is required. Each figure counts as one word. When panels are desired a charge of \$2.00 is made for a panel 1 inch deep by 2½ inches wide. Address all advertisements for this section to SANITARY ENGINEER, 143-153 University Avenue, Toronto, Canada.

SALESMAN

with real selling ability and able to direct sales activities in connection with Hot Water and Steam Heating Lines, also plumbers' supplies. Must be fully conversant with French and English languages, also in complete sympathy with all classes of the trade in Provinces of Quebec and Ontario. Age not over 40 years preferred. Advancement assured if ability demonstrated.

Box 206, Sanitary Engineer,
Toronto.

PATENTED
IN
CANADA



Better
Selling
Value
Than Ever

We have equipped our Steel Baths with Pressed Steel Removable Legs and 3 inch Roll Rim around the top, for which we have secured a Canadian Patent. This Roll Rim adds greatly to the selling value of

TWEED ENAMELLED STEEL BATHS

They now look like the expensive cast enamel baths but are the same price as before. Our new patent Roll Rim Enamelled Steel Baths are now ready for shipment—Order samples.

The Steel Trough & Machine Co. Ltd., Tweed, Ont.

Toronto Office—220 King St. W. A. R. Wooldridge, Representative.
Montreal Office—10 Victoria St. G. M. Price, Representative.



Tapped Closet Bend

Easier to attach
More permanent
Cost less



Farrfhern Steam Service

If you have a complicated steam job, stop merely trying, and have our expert immediately give it the "once over."

Stop wishing—let us rip into the trouble for you. Others do it.

In the solving of steam and condensation problems, whether it is steam process or heating work, we can be of service to you, being specialists in this line.

If you are interested in giving your customers the most economical, efficient, and dependable type of equipment for service in returning condensation and boiler feeding, write us for information.

Farrfhern Steam Service

Limited

304 Manning Chambers, Toronto

WROUGHT PIPE



Suitable for the approaching period of building activity, road construction, etc. This is a line of great importance in making successful, profitable contracts. Our C. T. Brand of Wrought Pipe has been

THOROUGHLY INSPECTED

by practical, experienced men. It is tested to 600 lbs. hydraulic pressure, and branded with our trade-mark. We carry this line of reliable pipe in sizes ½-in. to 4-in. Black or Galvanized. We also manufacture nipples and couplings, black and galvanized, in all sizes.

Ask your Jobber for C. T. Brand Wrought Pipe

Canadian Tube and Steel Products Co., Ltd.

Operating Canadian Tube and Iron Co., Limited
Works at Lachine Canal, Montreal

Good publications furnish A.B.C. reports to their advertisers.

Sanitary Engineer is a member of the Audit Bureau
of Circulations.

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Time to Hustle

GOT to keep moving these brisk fall days; must hustle every minute to get farm business and make installations before Jack Frost seals up the countryside.

Ever stop to think how much of your time could be saved by installing only Griffith All Metal Septic Tanks?

The pit is dug. Just drop the Griffith Tank in. Connect up and—pass along. The job is complete and permanent.

Griffith All Metal Septic Tanks work perfectly. Think of this: **We have never had one single complaint.**

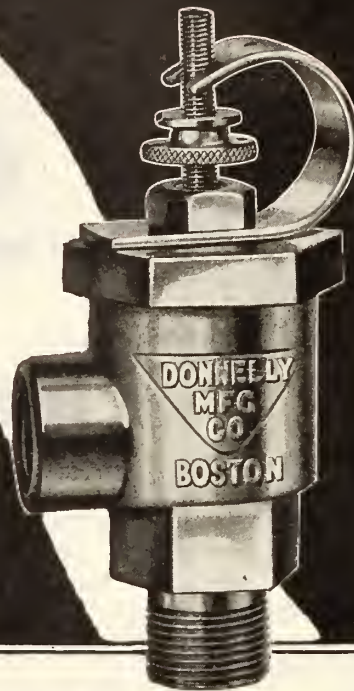
Write in to-day and ask us to tell you more about these better tanks that bring you better profits. You will get the information by next mail.

**We are Canadian Distributors
of the Famous Dayton Pumps**

T. G. Griffith & Company

Manufacturers and Sanitary Engineers

165 King St. E. - Toronto, Ont.



The

DONNELLY RELIEF VALVE

TRADE

MARK

*You may
as well have
the best
--it costs no
more.*

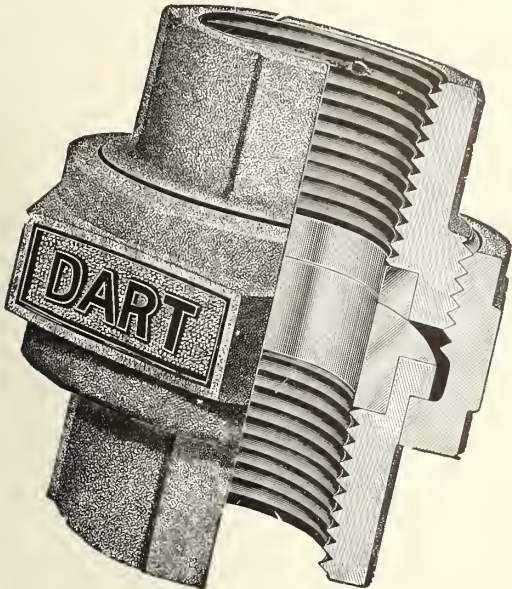
IT is gratifying to know that you have really protected the people you serve with valves that are designed right, made right, and are dependable. Better than an insurance policy—Donnelly Valves not only protect, but prevent disaster.

Ask your jobber or write us

IRA I. NELSON
PLUMBING SPECIALTIES
TEN HIGH STREET
BOSTON, MASS.

*The valve
that is trouble-
proof.
Install it and
forget it.*

DART UNIONS



Stay Tight Permanently

No Upkeep Cost
No Replacement Cost
No Loss from Leaks

Because—THEY ARE BRONZE TO
BRONZE AT THE JOINT

Your Jobber Sells Them

Manufactured by
DART UNION CO., LIMITED, TORONTO, ONT.

BEAVER BRAND Porcelain Enamel Ware

—*Your Guarantee of Quality*—

Beaver Brand Enamelware by its ability to meet the highest demands for service under all conditions, has established itself in the confidence of the public to such an extent that each month witnesses an ever-increasing demand for products of Beaver manufacture.

Amherst Foundry Co., Limited

General Offices and Factory: Amherst, N.S.

Agents :

ONTARIO:
Monarch Brass Mfg. Co.
71 Brown St., Toronto

MANITOBA AND NORTHWEST:
E. B. Plewes
197 Princess St., Winnipeg



“What a Neat Looking Valve”

It looks good, this baby member of the Perfecto family—that is the first impression. And the goodness goes right through.

This new valve that opens and closes with one twist has these outstanding features of design and construction:

Read—

Shoulders on each connection prevent pipe from interfering with the barrel.

Body is threaded on the OUTSIDE.

Bonnet tightens down on a fibre gasket insuring a tight connection.

Cushion packing nut which is easily repacked.

Made of best quality metal mixture.

Parts are machined to gauge and are interchangeable.

Broached handle with curved top that holds no dust.

Neat in appearance and carries the same “Two-for-One” guarantee as the famous Perfecto Brass Goods.

GALT BRASS COMPANY, LIMITED

Galt, Ontario

Branch Offices:

WINNIPEG

TORONTO

MONTREAL

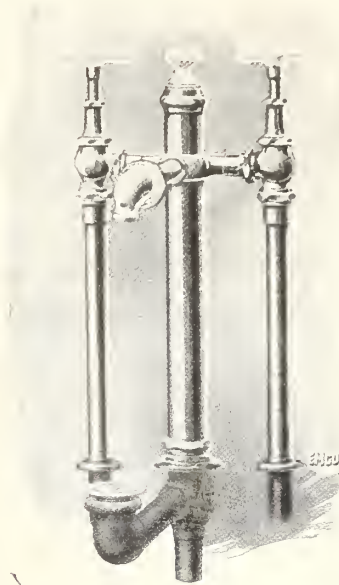
Sanitary Engineer

Plumber and Steamfitter of Canada

Vol. XVII

PUBLICATION OFFICE: TORONTO, OCTOBER 15, 1923

No. 20



Emco Exposed Fitting for Tiled in Baths

THE handsome design and finish of our B9751 makes this fitting a favorite where a high-class installation is required.

All exposed metal parts are highly polished nickel plated. This fitting has proven highly satisfactory where it is inconvenient to conceal the supply and waste pipes.

We have incorporated in this exposed fitting for tiled-in baths the quality of utility and beauty to such a degree that it is being used in the best installations in the homes of Canada.

Examine our B9751 at your jobber or write us for a trial order.

Empire Brass Manufacturing Co., Limited

London and Toronto, Canada



TO-DAY WE ALL WORSHIP "GIMMIE"

"GIMMIE"

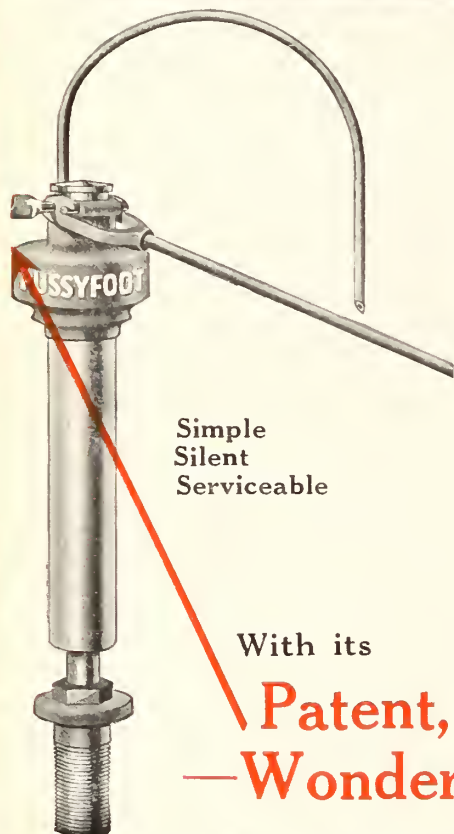
I'm GIMMIE of the outstretched hand,
My password's known in every land;
With me around you're bound to miss
The GIMMIE that and GIMMIE this;
So keep me near you night and day,
Let GIMMIE bring good luck your way.

GIMMIE — Pleasure — Wealth — Health
Everything for ease—Luxury—Comfort
We seize with outstretched hand—

Mr. Plumber—

All these GIFTS will be yours in full
measure if you say to your JOBBER—

GIMMIE "Pussyfoot"



Simple
Silent
Serviceable

With its

**Patent, Silent, Simple Valve
—Wonderful.**

and insist on having

Pussyfoot



THE CANADA METAL COMPANY
LIMITED
TORONTO

MONTREAL
HAMILTON

WINNIPEG
VANCOUVER

SHANKS'

White Glazed Vitreous China Lavatories- The "PARAGON"



No. 4684. With Hooded Overflow and Anti-splash Rim.



No. 4685. With Open Overflow, no Anti-Splash.

The "PARAGON" LAVATORIES are made in white glazed Vitreous China with holes for taps and waste (Popup or P.O.), fixture for securing pedestal to base and with nickel-plated brass stays to wall.

For beauty of finish, hardness and durability of glaze, Shanks' Vitreous China cannot be surpassed

The BODY is

NON - ABSORBENT THROUGHOUT,

Has GREAT STRENGTH

And is NON - CRAZING

British Manufacture

The word "BRITISH" when applied to manufactured goods implies a high standard of quality.

The name "SHANKS" when applied to Sanitary Appliances means--"the best that British Science can produce."

Ask your jobber for the "Best"

SHANKS' name is the guarantee.

Write for illustrated folder No. 374 describing Pedestal, Leg and Wall Lavatories, etc. Shanks fixtures are sold only through the jobbers, if your jobber has not yet stocked Shanks fixtures he can get prompt shipment either import or from emergency stock carried at Toronto.

Canadian Agents

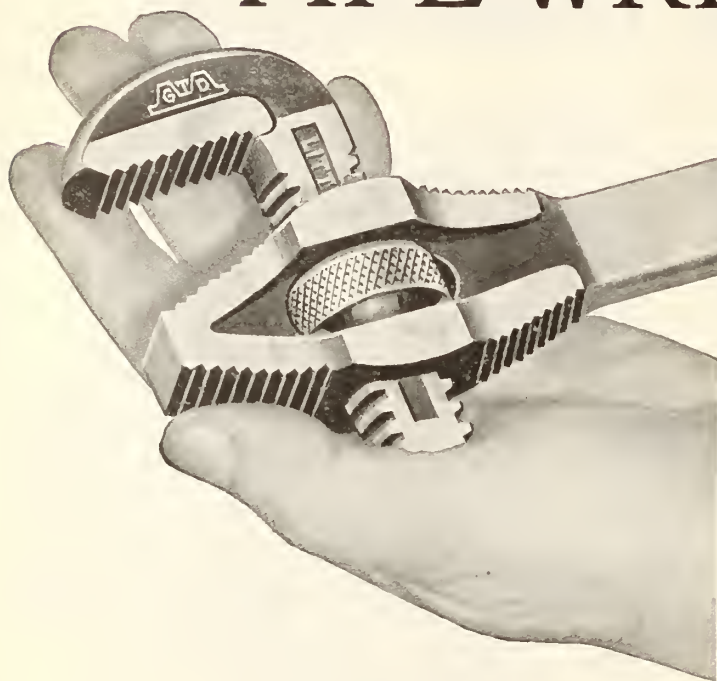
W. H. CUNNINGHAM & HILL, Limited
269 WEST RICHMOND ST., TORONTO, CANADA

For British Columbia:-

ALCOCK, DOWNING & WRIGHT, Limited - 162 Water St., Vancouver, B.C., Canada

THE *Little Giant* PIPE WRENCH

Patented Feb. 4, 1913.



*“Gets in
the Holes
and Corners
Where You
Want It
to Go—Extra Husky
and Powerful for the
Every-Day Work.”*

Fellow Engineer

Have you seen the *Little Giant*—the wrench that saves time and barked knuckles; makes possible many short-cuts in piping layouts and reduces the repair and replacement cost of wrenches to the minimum?

It has three parts only, and the metal is perfectly proportioned, giving maximum strength. Each part is drop-forged, carefully heat-treated, and practically indestructible.

Two sets of teeth on the smaller *Little Giants* and four sets on the larger ones double or quadruple their service life.

We welcome your investigation of the record the *Little Giant* has already made in plants both large and small and will gladly mail you copies of letters telling just what users think of it.

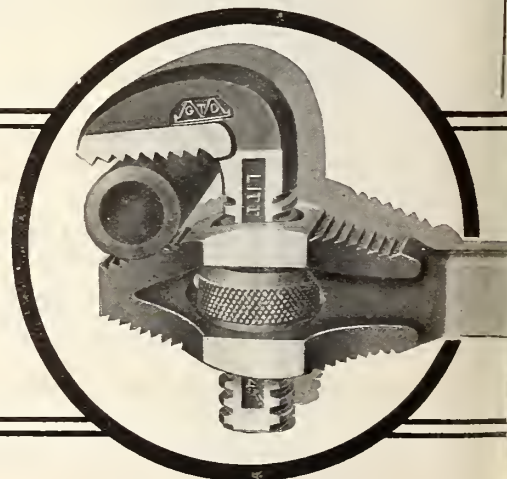
Better still try one out in your own plant. Our positive guarantee protects you. Order through your dealer or direct.

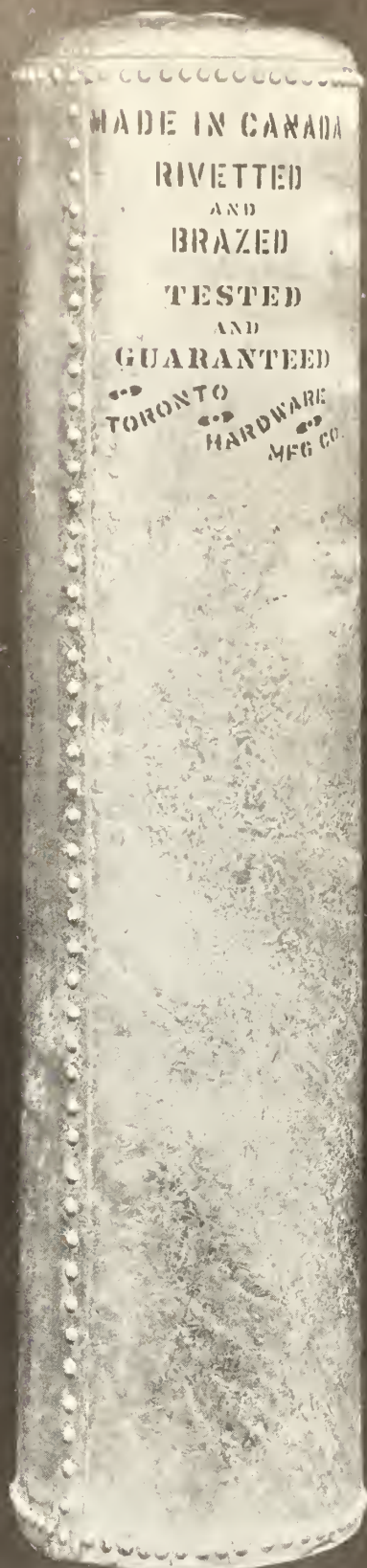
Descriptive circular No. 302 E sent on request.

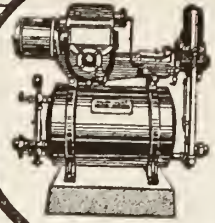
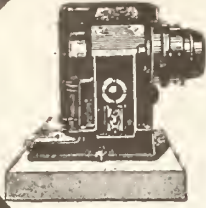


GTD

Screw Plates, Taps, Dies, Reamers, Gages,
Pipe Tools, Twist Drills, Machine Tools







The Delco-Light Line of Pumps is Complete

WITH a line of 26 styles and sizes of pumps for both deep and shallow wells, the Delco-Light dealer has a Delco-Light Pump to meet the requirements of every prospect. These pumps are made for 32 or 110-volt D. C. or 110 and 220-volt A. C. service, so as to suit the largest possible field of prospect.

For deep wells there are $\frac{1}{4}$ H. P. and $\frac{1}{2}$ H. P. pumps of the pitless weatherproof type. Both of these models are superior to any other deep well pump ever put on the market.

The shallow well pumps give automatic water supply of the most reliable kind.

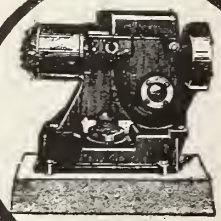
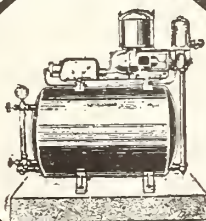
All of these pumps are simple in design, one place to oil, no exposed moving parts. Well constructed to the Delco-Light high standards. Easy to install. Low in price.

Doesn't this line look like a good money-making proposition for the pump dealer or plumbing contractor? If you are interested, write the nearest distributor for full particulars.

Delco-Light Co. of Canada, Limited
Toronto, Ontario

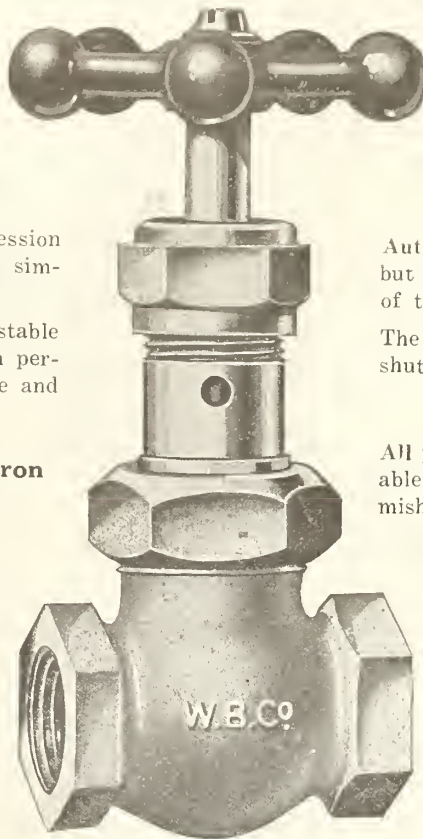
DELCO-LIGHT **Water Systems** *For Country and City Homes*

Electrical Systems, Limited
173 King St. East, Toronto, Ont.



NEW DESIGN

EXCLUSIVE FEATURES



This special design Automatic Compression Stop and Waste is unequalled for simplicity, efficiency, and durability.

The Waste opening is in the adjustable hood which can be set in any position permitting Stop to waste from either side and at any angle.

Sturdy Ball Type Japanned Iron Wheel

Automatic in action—no caps to remove—but wastes automatically with the closing of the Stop.

The waste does not begin until the stop is shut off.

Outside Stuffing Box

All parts are standardized and interchangeable, assuring ready repairs in event of mishap.

No. 3483— $\frac{1}{2}$ and $\frac{3}{4}$ Sizes.

This easily operated Compression Stop and Waste is being very generally installed, replacing the Ground Key style which becomes impractical in use owing to the keys setting tight.

For Quick Service Ask Your Jobber

THE
WALLACEBURG BRASS & IRON MFG. CO.

LIMITED

WALLACEBURG, ONT.

TORONTO OFFICE:

Mr. L. N. Vanstone, 10 Wellington St. E.
Telephone: Main 2355

MONTREAL OFFICE:

G. M. Price, 10 Victoria St.
Telephone: Uptown 8617

WINNIPEG:

Moncrieff & Endress, Ltd., 80 Lombard St.
Telephone: A 9135

This Is a Typical Up-
to-Date "Standard"
Bathroom



"Standard"
PLUMBING FIXTURES

A GENERAL desire for better living conditions and a particular desire for "Standard" Plumbing Fixtures is being created by our consistent and vigorous magazine and weekly newspaper "Rotogravure" section advertising. The public now looks upon "Standard" Plumbing Fixtures as the utmost in up-to-dateness. Are you cashing in on this?

Standard Sanitary Mfg. Co.
Limited

General Office and Factory: Royce and Lansdowne Aves., Toronto, Ont.

Toronto Showroom:
55-59 Richmond St. E.
Montreal:
705 McGill Building

Winnipeg Showroom:
145 Market St. E.
Calgary:
354 Eleventh Ave. W.

Hamilton Store:
20-28 Jackson St. W.
Vancouver:
Cambie Street

Let's Warm Up Those Cold-Hearted Homes

Inquiries reaching me indicate that there is a whole lot of replacement business awaiting you heating engineers and steamfitters right now.

Many a home with a handsome "face" has a cold heart. I hear of numerous cases of chilly houses, and so do you. Seems to me that a little team-play will place Gurney Heating Systems in most of these buildings this Fall.

You know the Gurney reputation, won by over 80 years of close application to the Gurney ideal of satisfying service. And you know Gurney Products to be living right up to that reputation.

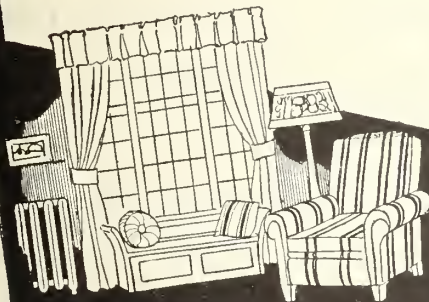
No hesitation about recommending a Gurney System, no matter what the heating problem may be, is there? I thought not. Then let's get together and sell Gurneys to those prospects of yours.

Write to me personally to-day. I've an idea I can give you some helpful suggestions on getting replacement business.

Yours sincerely,

Holt Gurney

Gurney



Gurney Furnaces for Steam, Hot Water and Warm Air
—Gurney Stoves for Electricity, Gas, Coal and Wood
are good products worthy of the Gurney name

The border shown above set off a recent Gurney advertisement that showed how "Gurney Twin" Hot Water Boilers solved the heating problem presented by a very luxurious, but cold, home. That Ad. said this: "If you, too, live in a cold house, get in touch with a good steamfitter or heating engineer and have him look over your heating system." What have you done to "cash in" on that advertising?

Gurney Heating Systems are the last word in efficiency, economy, and simple operation. The initial cost is soon repaid in fuel and labor saving, in satisfaction and comfort.

When writing us, ask for our booklets and catalogues on Gurney Boilers and Radiators.

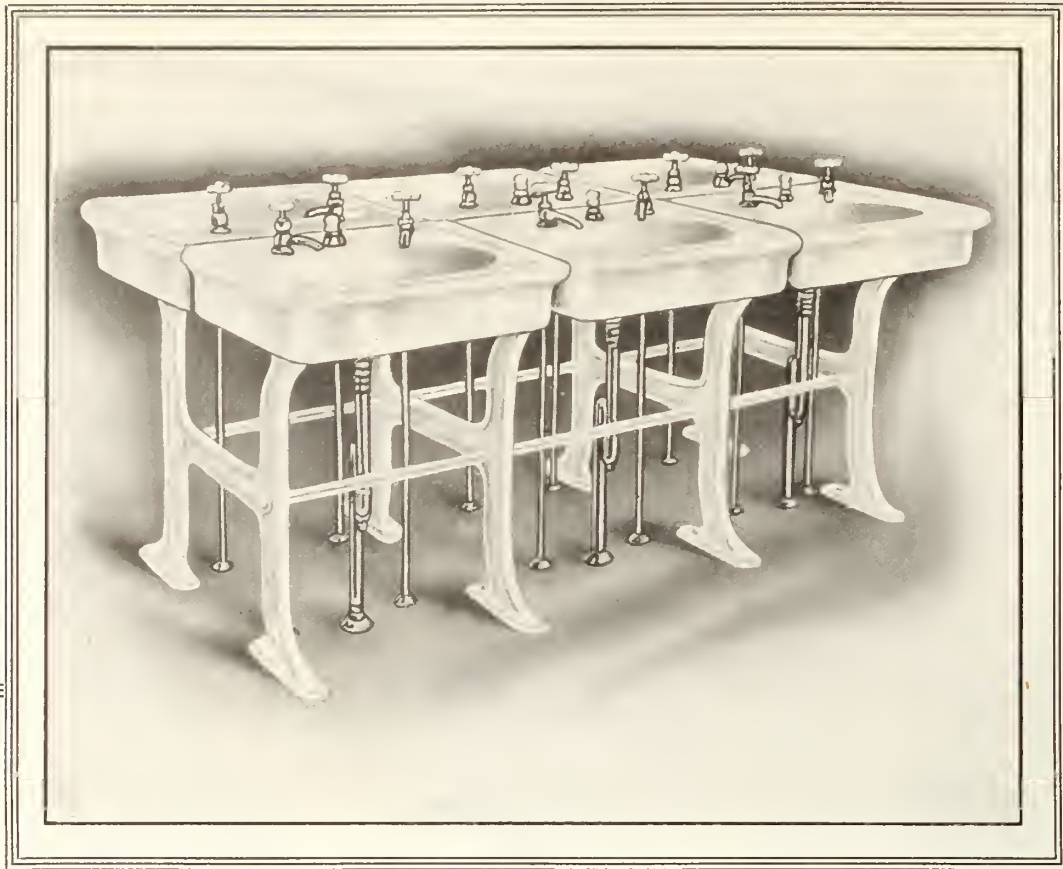
THE GURNEY FOUNDRY COMPANY

LIMITED

Toronto and Vancouver

Gurney-Massey Co., Montreal

Gurney Northwest Foundry Co., Winnipeg



Canadian Solid Vitreous Lavatories For Factory Wash-rooms

Taking for granted that at least one sanitary wash-room should exist in every factory building, there is a large sales field lying within range of the plumbing fraternity in the equipment of industrial buildings of all kinds in every community.

And wherever wash-rooms are installed, Canadian Solid Vitreous Lavatories will be found to be the most efficient, the most sanitary, the most attractive and the most lasting of any.

Their hard-burned all-clay body, vitreous through and through, ensures a lifetime of hardest wear; their shimmering white, adamant-like, glaze surface defies dirt or germs, being as smooth as a pane of glass and as easily kept clean as a china plate.

The ample slab, the roomy bowl, the quick-draining outlet, the luxurious whiteness and cleanliness of the whole fixture appeal to the workmen and encourage tidiness.

The unchanging endurance of the ware, its pre-eminent sanitary qualities and the ease with which it can be kept clean recommend it to the owner, and render not only lavatories, but closet bowls and other sanitary fixtures of Canadian Solid Vitreous ware superior for factories or institutions of any kind where hard wear is expected and received.

The "Glenhemp" battery illustrated is a suggestion of a very suitable factory installation. We can, however, furnish many other designs to suit any individual requirement or preference.

CANADIAN POTTERIES LIMITED

SAINT JOHNS
QUEBEC

Sales handled exclusively through recognized jobbers in plumbing supplies

SANITARY ENGINEER

PLUMBER AND STEAMFITTER OF CANADA

ESTABLISHED 1907

PUBLISHED TWICE MONTHLY

Vol. XVII. PUBLICATION OFFICE: TORONTO, OCTOBER 15, 1923 No. 20

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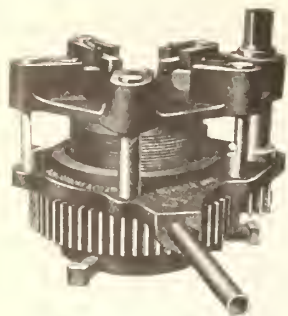
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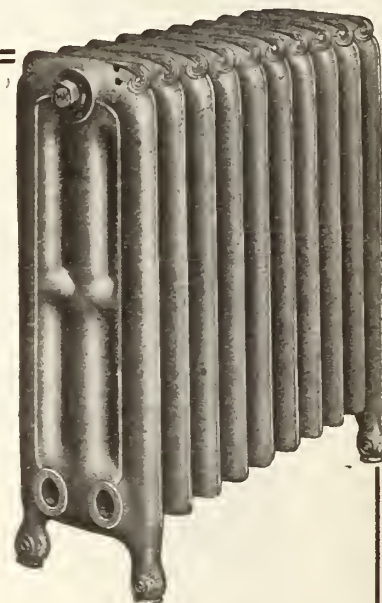
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TORONTO, OCTOBER 15, 1923

No. 20

"More and Better Plumbing and All Branches of Trade in Accord"

Such is the Aim of New Plumbers' Organization Formed in Toronto, According to Chairman Major L. L. Anthes—Has Been Too Much of the Individual and Lack of Co-operation in Past, Says C. F. Rogers—Series of Meetings to be Patterned After Hamilton Organization

AN INAUGURAL meeting of an organization of sanitary and heating engineers in the city of Toronto was held last Wednesday evening. The gathering was attended by some forty or fifty members of the craft along with about twenty representatives of manufacturing, jobbing, and publishing company representatives. The plan was conceived by a number of members of the Toronto craft, after noting the success which had attended such meetings of the craft in Hamilton and steps taken to bring about this impromptu and somewhat spontaneous gathering to sound out the local plumbers and heating engineers as to their attitude toward a similar series of meetings in Toronto this winter.

A splendid dinner was served, during which there was much song singing. This was followed by one of George Baker's inimitable stunts dealing with the conduct of the average English coster at a show. K. B. Allison explained something of the nature which such meetings should take, the necessity for maintaining strict schedules of procedure. Roy Belyea then introduced the chairman of the gathering, Major L. L. Anthes, Managing Director Anthes Foundry Co. Mr. Belyea spoke as follows:—

"We have gathered here to try and draw the plumbing interests of the city closer together and thereby to make things better for the manufacturer, jobber and operator. Major Anthes is the proper man to lead any such movement. We understand a similar plan is working with 95 per cent. efficiency in Hamilton. We in Toronto have about 500 operators and the best we can boast of in an organization way is about 70. We can only get out of these organizations what we put into them, and by helping ourselves we cannot help but assist the other fellow, too."

Will Help Cause

Major Anthes upon rising was greeted vociferously and proceeded to address the meeting on the objects of the gatherings. "I was approached a short

time ago by some of the craft in the city," said he. "These craftsmen thought I was Moses who had come to lead them out of the wilderness of doubt. There is much doubt expressed in the newspapers about the honesty of plumbers and much doubt in the trade itself about certain things. It is unfortunate that many years ago the plumber got a bad name and to-day is suffering for it. This doubt is a slur on the plumbing profession and its personnel. The plumber as I have known him for 29 years has been to me a pretty good sort of fellow and my desire to-day is to do all I can to help the craft of this city to put their trade on a higher plane; to try and persuade the public to exercise more kindly feelings toward the craft and give the plumber the respect which is his due. The foundation of all health is sanitation and proper heating. Enough attention has not been given to the man who prevents disease.

"A few weeks ago I visited the plant of Page-Hersey Tubes, Ltd., in Welland, in company with members of the plumbers' organization recently formed in Hamilton. It was while on that visit I appreciated what could be done by such an organization, and the suggestion was then made that a similar movement could be put under way in Toronto. I decided I would do whatever I could, and we have now taken the first step toward starting such an organization. We will get working committees formed to make future plans. It is our feeling that we should have more plumbing and better plumbing and all branches of the trade should be in accord. We expect to have manufacturers and jobbers at future meetings to discuss their problems. We have all been too far apart."

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Describes Hamilton Organization

C. F. Rogers, Hamilton, Ont., local manager Standard Sanitary Mfg. Co., gave a very interesting outline of the reasons for forming the organization in Hamilton after which the Toronto organization was to be patterned. Mr. Rogers in answering the points: What do we get out of it? Why do you hold such



MAJOR L. L. ANTHERS,

One of the prime movers in the new organization of Toronto plumbers.



A portion of the group of master plumbers, heating engineers, jobbers, representatives and manufacturers who gathered at Hunt's, Toronto, to lay the foundations of an organization of the city craft for the purpose of holding a series of educational meetings during the winter. At the left at the head table is seen Major Anthes, next to whom is Gilbert Shanks, of Shanks, Ltd., Scotland, who was the speaker of the evening.

meetings? addressed the meeting as follows: "The tendency in the past has been toward too much individualism in this industry. The manufacturer has said, 'I make good goods, I charge what I please for them, and it is nobody's business whether I make 10 per cent. or 100 per cent.' The jobber has said, 'I buy as cheap as I can and sell at as good a profit as my competitor allows.' The plumber and the journeymen express the same idea. I do not say that this is actually done, but there is a tendency toward this sentiment, and, while it may be right in some respects, yet it is all wrong, because the plumbing industry is interlocking."

Mr. Rogers drew attention to a chart which he had prepared showing various circles, one within the other. The smallest one represented manufacturers, next jobbers, next master plumbers, journeymen and the consumer.

"The manufacturer cannot increase his business without increasing the business of the supply house," he continued, "and similarly the supply house cannot increase business without increasing business of the master plumber, and the journeyman in turn gets more work, and we are all responsible to the consumer."

"Take the case of two faucets for instance, the one good quality, and the other containing less costly material. The good one at \$1 may, after two years, be as good as new, but the other one, which perhaps sold for 90 cents, has gone to pieces. The cheap one was an injury to the whole plumbing business. The master plumber who puts in 125 lb. valves where 250 lb. valves should be used injures the reputation of himself and the whole industry. The journeyman who puts a wrench on the wrong end of a 250 lb. valve, and strains it, injures his employer and the manufacturer."

Mr. Rogers proceeded to point out that from his experience in other organizations he felt that too many speakers adopt a "preaching" attitude, which makes the hearers antagonistic. This type of speaker, he thought, should be eliminated in such programs at plumbers' gatherings. He appealed for the elimination of the dirty story or anything of a similar nature which would tend to bring discredit upon the industry. Bearing out the point that from every speaker who tells of his own business problems and how he has met them, some point of interest can be taken by hearers, Mr. Rogers cited a recent address by Sir Joseph Flavelle to which he had listened. The speaker told of how he reserved every Saturday morning to go over statements of the business, so as to have an accurate knowledge of its workings. Mr. Rogers thought this a good lesson for other business men.

Showing how this plan had worked out in practice, Mr. Rogers briefly reviewed some of last winter's meetings of the Hamilton organization. He outlined how Mr. Martin Quinn, National Equipment Co., Toronto, had advised plumbers to raise their profession to the level of that occupied by lawyers, whose advice is taken strictly by clients who quite admit that the lawyer is a learned man.

Mr. Burleigh, H. Mueller Mfg. Co., had shown how the mills took in seven tons of brass at one door and turned out one ton of finished product at the other, pointing out that the price of a bibb could not be judged by the weight of metal in it. Mr. Rogers stated that for the coming winter a banker would address one meeting to show how plumbers could better use the facilities of the bank.

Getting Everyone Acquainted

"It is well to attend such meetings for the social advantages," continued Mr. Rogers. "It is well to know your com-

petitor. We broke up cliques and got the men well acquainted by shuffling two decks of cards, putting one set around the plates and handing out the others till the men were well mixed up. We follow closely to our schedule, starting meetings at 6 and being over at 8 p.m. Last winter, though the first season for the meetings, we escaped anything in the way of a deficit, and the plumbers have pledged their assistance for further series of meetings."

Gordon Stewart, secretary of the Hamilton organization to which reference has been made, and president of the Ontario Society, D. S. & H. E., spoke next, outlining further details. He pointed out how that while at first the plan as outlined by Mr. Rogers had seemed incapable of execution, they made a good try and succeeded in putting it across. Every plumber attending paid his share of the expense, and did his part in making the program a success. Strips of tickets for the whole series of meetings were sold before any program was put on. There was no connection between the organization and any other master plumbers' association. No place was provided on the program for open discussion, there being strict adherence to the program. He urged those attending such meetings to do so with an open mind and not to be critical.

"We are indebted to Mr. Rogers for the success of our meetings. He has given us wonderful help. He has that trait of knowing how these things should be done successfully, and nothing has been done haphazard with us."

Following Mr. Stewart's address, the speaker of the evening, Mr. Gilbert Shanks, was introduced by Mr. B. W. H. Cunningham, whose address is outlined elsewhere in this issue.

Takes Two Months to Make Ordinary Article of Sanitary Pottery

Educational Address on Sanitary Pottery Shows This Ware is Divided Into Three Main Groups—Earthenware, Fire Clay, and Vitreous Ware—Some Difficulties of Manufacture—Some Flaws Not Discovered for Long While

Address by GILBERT SHANKS, Director Shanks & Co., Barrhead and Kilmarnock, Scotland, before Toronto Master Plumbers

THE speaker of the evening at the inaugural meeting of the Toronto sanitary and heating engineers, was Gilbert Shanks, director of Shanks & Co., Barrhead and Kilmarnock, Scotland. Mr. Shanks was introduced by W. H. Cunningham of W. H. Cunningham & Hill, Canadian agents. Mr. Cunningham emphasized the important part played by sanitary pottery in the community life of the country, pointing out that few persons understood the characteristics of the three distinct classifications of such pottery. It was because of this lack of knowledge on the subject that Mr. Shanks had been prevailed upon to give the meeting the benefit of his knowledge of the subject.

In introducing the subject Mr. Shanks pointed out that it was a great honor to him to have such a reception as he had been accorded in all parts of Canada.

"My firm has always had a very close connection with the plumbing trade in the old country," said Mr. Shanks. "We have always endeavored to encourage the closest relations with our friends there and now that we are endeavoring to take our share of Canadian business it seems only right for me to come and make myself known to you.

"The founder of our business, my grand uncle, was a country plumber, a man of ingenuity and ambition and not satisfied to remain a small country plumber. So he started in to manufacture sanitary appliances. He managed to get some capital and along with my grandfather started the firm of Shanks & Co., sixty years ago. They had a great struggle. They had to use their 'Scotchness' to make it go financially. The business grew gradually, however, and to-day we have four plants including two potteries, employing over a thousand men and we trade all over the world.

Big Difference in Wares

"There is a big difference in these wares, they being divided into three main materials. We call them earthenware, fire clay and vitreous china. In this country earthenware is often referred to as china and fireclay is called porcelain.

"Earthenware is composed of highly purified clays. The main characteristic of the body is that it is porous. It is

made very thin, being about $\frac{3}{8}$ in. in thickness as a maximum. It is manufactured by the casting process and is a white body. The glaze put on is transparent and this kind of ware depends on the whiteness of the body for its color. It is not intended to resist hard usage.

"Fireclay is a yellow body and is porous. It is used chiefly for bath tubs and urinals in this country and you call it porcelain. This clay is not purified like earthenware and must be kept very open in manufacture. In fact to keep it well open it is mixed with sawdust which is ultimately burned out, leaving the fireclay very porous so it will be properly vented. It is the only ware practicable for the purpose outlined. It is very thick and the only thing to stand up in large wares. The glaze is opaque to give it a white surface on a yellow body.

"There is a semi-vitreous material on the market here, some lavatories being made of it. It is a cross between earthenware and fireclay. It is not vitreous but is also not so absorbent as fireclay.

Vitreous Ware

"Vitreous ware is made from the same basic material as earthenware but other materials are added to make it vitreous. It is white, and requires a very high temperature. The glaze is applied in the

firing process, substance being added to make it opaque. This gives it a white brilliant surface. It is quite a scientific problem to handle this ware, there being danger at the high temperatures. Vitreous china is the best form of ware that can be used. It is more costly but is much superior. The body of it is strong and not absorbent. It has heat and acid resisting powers.

"This is a difficult line of manufacturing to conduct. There must be a very delicate balance in the mixture of materials, the slightest fault being a serious matter. The firing of the pieces is also tricky, a much higher temperature being needed than for enamelled iron. Sometimes trouble caused by faulty material is not apparent until the article has passed through the hands of manufacturer, jobber and plumber and been installed for some time, and then everyone is blamed.

"It takes two months to make a piece of this ware from the raw material to finished product. You can make a brass faucet in two days, so you can see why sometimes there is delay in delivering this line of goods.

"I have heard it said that Canadians support Canadian industry first, and British products second in all their trade. I am informed that there is not enough pottery ware produced in Canada to satisfy needs. I might say there is plenty of very fine pottery to be obtained from our country. I have been amazed at the great progressiveness and obvious efficiency of this country. I think there are good prospects ahead. In our line I know that high standards of plumbing fixtures are being demanded on all sides. We feel our country can do business with such a progressive country as this. We need the trade. Affairs in our country are not too good. We have a million and a quarter unemployed. Overseas trade is our lifeblood. We cannot support our population on home grown food for two days a week, and there is only a two day a week volume of business as an outlet for home produced goods in our country. Our statesmen are trying to find ways to increase trade. Canada can do its share and will do it we believe because the word British has always stood for all that is strong and free."



GILBERT SHANKS

Big Progress in the Plans for Education of the Plumbing Apprentice

New Courses Outlined in Detail as Being Planned for Various Schools—Schedule of Hours for Instruction—Details of the Minneapolis System—Many Important Topics Considered

EDITOR'S NOTE: — Having been called upon by the chairman of the Apprenticeship Committee of the Canadian Society and the Ontario Society D.S. & H.E. respectively, for some further information concerning progress being made in other parts in connection with instructional courses for apprentices, Sanitary Engineer presents herewith some further information which has been specially secured from various sources, including officials of the National Trade Extension Bureau, concerning such classes:

THE Minneapolis course, to which reference was made in a recent issue of Sanitary Engineer, is conducted for apprentice plumbers, and is one of forty-six schools in operation in Canada and the United States. The Minneapolis plan was worked out by W. W. Hughes for the Minneapolis Association of Retail Plumbers; Wm. Redieske, secretary of the association; Dr. C. A. Prosser, president of Dunwoody Institute, and Charles R. Allen, of the Federal Board for Vocational Education. The Dunwoody Institute operates both the part-time first-year classes and the evening classes for the second and third-year apprentices.

"The plans of the National Trade Extension Bureau," states Mr. E. L. Bowman, educational director, "contemplate a campaign of publicity to master plumbers, apprentices, present and future, to parents of prospective and present apprentices, to journeymen, manufacturers and community organizations.

"We are engaged also in the preparation of standard instructional material in the form of lesson sheets for the use of all approved schools of plumbing. These lesson sheets will be 8½ x 5½ in. on the loose-leaf plan, and will be furnished at cost by the bureau. Along with the lesson sheets will be supplied a teacher's manual giving suggestions as to the best methods of presenting this material. To work out this instructional program, we are fostering the establishment of an experimental school in Evansville and another at a different point in Indiana where, with the co-operation of the local authorities, we can work out the best form of instruction for apprentice plumbers.

"A third phase of our work is connected with organization of community schools. Manuals for local instructors are being prepared on the following sub-

ASKS SANITARY ENGINEER FOR DATA

Editor, Sanitary Engineer,—

In your issue of Sept. 15, page 15, we noticed an item suggesting a scholarship plan for sanitary engineers. The writer is very much interested, being chairman of an Apprenticeship Committee, and wishes to get all the data possible in connection with the training of apprentices for the plumbing and heating trades. We have a training school here, but it is not working as well as we hope to have it. I would be glad to have details about the scholarship plan and any information about the Minneapolis course.

(Signed) Peter C. Ogilvie,
Montreal.

jects: Taking Stock of the Community, Directions for Finding the Facts Which Are Essential to the Proper Development of the Community Plan for Apprentice Training; Organizing the Controlling Bodies, the Setting Up of Joint Apprenticeship Committees and Advisory Boards Together With the Best Possible Control of the School by the Industry; Selecting and Registering Apprentices; Equipment and Texts for a Plumbing School; Choosing, Training and Keeping Instructors; Opening the School; Maintaining Interest and Attendance; and Testing Results. These manuals will be in mimeographed form and are being prepared as rapidly as possible."

To indicate how the Bureau intends to proceed in the experimental school in Evansville, a copy of the schedule prepared for guidance of the interested parties is reproduced as follows:

PROPOSED SCHEDULE

Evansville Experimental School for Apprentice Plumbers

1923-1924—

Nov. 1.—Begin part-time work for all apprentices not previously attending school.

Jan., Feb., 1924.—Employers choose boys whom they intend to make apprentices by June 1.

March 17, 1924.—Open first pre-employment school for prospective apprentices; closes June 13, 1924.

June 16, 1924.—New apprentices begin work.

July 14, 1924.—Part-time school for first-year apprentices begins.

Oct. 6, 1924.—First evening school for second and third-year apprentices opens.

The Minneapolis System

The schedule followed in connection with the Minneapolis plan for training apprentice plumbers is shown herewith.

SCHEDULE OF HOURS OF INSTRUCTION

Shop Work	Total	Pre-Emp.	I	II	III
Shop Construction	220	150	50	10	10
Repair Work (Lead Work)	180	30	30	60	60
Trouble Shooting	20	—	—	—	20
Tools and Their Care	10	10	—	—	—
Total Shop Work	430				
Related Work					
Arithmetic for Plumbers	80	30	40	10	—
Blueprint Reading	80	40	30	10	—
Science for Plumbers	100	50	30	10	10
Trade Press and Progress	20	20	—	—	—
Apprentice and His Opportunities ...	15	15	—	—	—
Conserving the Customer	15	15	—	—	—
Total Related Work	310				

First-year apprentices are required to attend school two half-days of four hours each for 45 weeks, or a total of 360 hours. Second-year and third-year apprentices attend a night school four hours a week for 25 weeks, or a total of 100 hours each year.

The unit on Repair Work in the table which follows includes soldering and the wiping of joints in lead pipe. It is intended that practice in joint-wiping be carried on by the apprentice outside of class.

Trade Press and Progress is intended to familiarize the apprentice with the history of the trade and the current development of it as shown by the trade magazines.

Conserving the Customer covers the means used to insure a satisfied customer, and to induce him to continue dealings with the master plumber because of the faithfulness on the part of the apprentice in caring for the customer's interests.

Following is the proposed division of time for the instructional subjects:

Subject	Total Hours	First Year	Second Year	Third Year
Science for Plumbers	60	45	10	5
Arithmetic for Plumbers	60	45	10	5
Blueprint Reading	60	45	10	5
Shop Construction	170	110	45	15
Repair Work	145	60	25	60
Trouble Shooting	10	—	—	10
Plumbing Code	20	20	—	—
Trade Press and Progress	5	5	—	—
Tools and Their Care	10	10	—	—
Apprentice and His Opportunity	10	10	—	—
Conserving the Customer	10	10	—	—
Totals	560	360	100	100
Divided into—				
Shop	335	180	70	85
Classroom	225	180	30	15

THANKS SANITARY ENGINEER FOR INTEREST IN TRADE

Editor, Sanitary Engineer,—

Am in receipt of your letter and wish to thank you for your interest in the trade. As chairman of the Apprenticeship Committee of the Ontario Society I have been endeavoring to find the best way to get acquainted with the different apprentices in the province. I find it nearly impossible for me to get in touch with these apprentices and to know what is doing. We have in Ontario at present apprentices who are anxious to get along. We also have others. But I feel that if something could be done to further assist the apprentice who is both interested and ambitious, our efforts would be well rewarded.

Trade journals are a great asset to the trade, and I have often thought what a great help they could be made if linked up with this apprenticeship question. Now that we have your kind offer of assistance we must get down to a system.

Yours truly,

(Signed) W. Newell,
Hamilton, Ont.

PUBLIC LAVATORIES CONTEMPLATED

Toronto. — The commissioners of the Property, Works, and Parks Commissioners, are now working on a joint scheme of public lavatory accommodation, the proposal being to construct 24 new lavatories in various parts of the city, at a cost not to exceed \$300,000.

APPOINTED GENERAL MANAGER

St. Catharines. — A. M. Welsh, formerly secretary of the Imperial Radiator Co. Ltd., has been appointed general manager of the company, succeeding E. T. Wingate, who resigned a short time ago.



A neat-appearing shop front does much to influence women prospects who pass up the untidy shop with the feeling that a plumber who is not careful of his own premises will not be any more careful while working in the homes of others.

Heating and Ventilating Department

Results of Tests of Radiator Traps

Performance Data on Nineteen Radiator Traps Covering Venting of Air, Drainage of Water, Trapping of Steam, and Freedom From Noise

(Continued from last issue)

THE radiator is equipped with thermometers at the points indicated which give the surface temperatures of the radiator at those points. If these temperatures be averaged, we have the average temperature of the entire radiator surface. The average temperature of the entire surface, divided by the temperature of the incoming steam, gives what is called a "temperature ratio." (To make this ratio more exact for the purpose for which it is to be used, the room temperature is subtracted from the temperature of the incoming steam and from the average temperature of the surface of the radiator, before the above division is effected.)

It is obvious that if the air were not vented from the radiator, the radiator would not completely fill with steam and the average surface temperature would be much below that of the steam at the inlet valve. It is also obvious that if the water of condensation were not drained from the radiator, but filled the lower part of the columns, not only would the surface of the radiator be cooler where the water was so gathered, but also that such accumulation of water would obstruct the free flow of steam to the several columns (in the case of a radiator of the "Column-steam" type); and the surface temperature of the radiator would be lowered thereby. Accordingly, the above temperature ratio is assumed to measure the efficiency of the radiator in the performance of two of its duties, namely, the venting of air and the drainage of water.

Drainage of Water

As the steam condenses in the radiator, the water of condensation passes out of the radiator through the outlet. The outlet pipe and the last column of the radiator are cross-connected with a water-glass similar to that cross-connecting the inlet pipe and the first column, and adapted to show the water level at this point.

The trap that is being tested (G) is connected to the outlet pipe and functions in the usual manner. The water of condensation, draining through the trap (G), flows down through pipe (H) into the first of two water siphons (I).

The overflow from the water siphon (I) flows into the water siphon (K). The overflow from the water siphon (K) flows into one of the condensation pots.

It is obvious that the pipe (H) might connect directly with the condensation pots without the two intermediate siphons (I) and (K). But in such case there would be more or less of a flow of current of water which might carry with it some part of such steam as passes the trap. Accordingly, it has been found better practice to eliminate any flow or current by introduction of the two water siphons. These are filled with water at the beginning of the test. It is merely their overflow which passes into the condensation pots and is measured.

It will be noticed that two condensation pots are used. While one pot is receiving water from the radiator, the other pot is shut off and its contents drawn and measured, and vice versa.

Passing of Steam

Whatever steam the trap allows to pass (without trapping) rises through the pipe (L) into the condenser where it is collected and condensed to water. This water flows through the pipes (M) and (N) to the two steam-passed pots. One of these pots receives the water

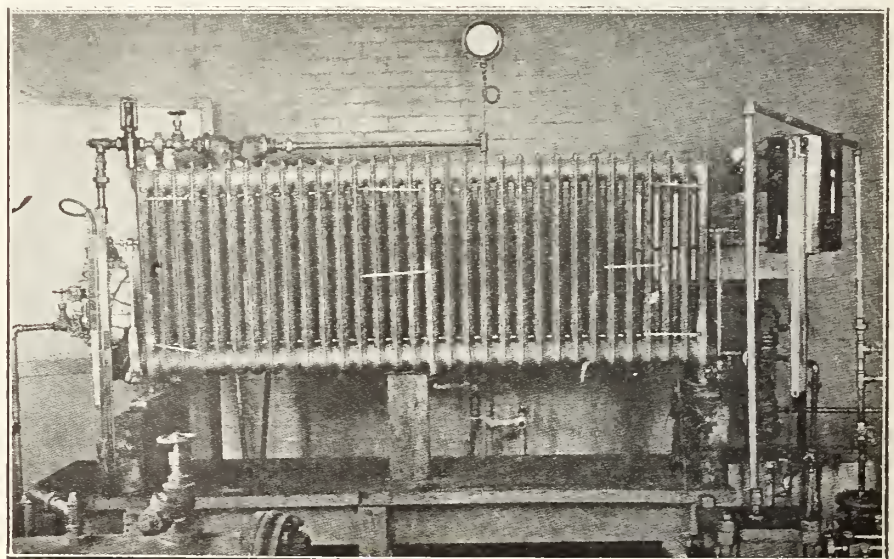
while the other is shut off and its contents drawn and measured, in the same way as the condensation pots.

It has been found that some of the steam rising through the pipe (L) on the way to the condenser condenses before reaching the condenser. Nevertheless, it has passed the trap as steam and is therefore to be measured as steam passed. Accordingly, it must be conducted to the steam-passed pots, which is accomplished through the pipe (O) connecting with the pipe (N) above referred to.

The total amount of water collected both in the condensation pots and in the steam-passed pots (measured in pounds) is evidently equal to the amount of steam received by the radiator (also measured in pounds). The amount of water collected in the condensation pots alone, in proportion to that collected in both sets of pots, is obviously the percentage of steam which the radiator has condensed and which the trap has trapped until so condensed. It is the measure of efficiency of the trap in its duty of the trapping of steam.

Use of Vacuum Pump to Reproduce Service Conditions

In order to reproduce service conditions, it is necessary to provide a degree of vacuum on the return system.



Testing apparatus used for radiator traps.

This is accomplished by connecting a vacuum pump to an air line which leads to each of the steam-passed pots and the condensation pots. But such a vacuum applied to the condensation pots would obviously disturb the water siphons (I) and (K), and pull part of the water of these siphons into the condensation pots. It is necessary to balance this pull by one in the opposite direction. This is accomplished by cross-connecting the outgoing water line with the outgoing steam line by a section of pipe (P). The steam line (L) is under the same vacuum by reason of the vacuum pump connection with the steam-passed pots.

The degree of vacuum is measured and registered by a mercury gauge at the top of steam pipe (L). In the first set of tests, a vacuum of 10 in. of mercury was used; in the second, a vacuum of 0 in.; and in the third, a vacuum of 5 in.

Possibility of Re-Evaporation

The apparatus described, the report states, functions with reasonable exactness in all respects but one. That is what is called "re-evaporation." In explaining this the report states:

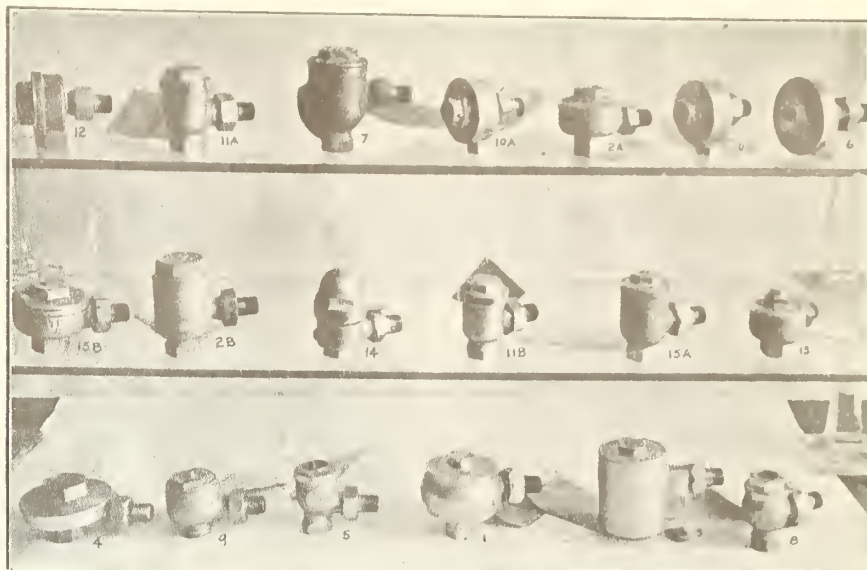
In the first set of tests, the pressure of steam in the radiator is at 6 in. of mercury (more than atmosphere). At this pressure, water condenses at a temperature of 221 deg. F. (instead of at 212 deg. F. when under atmospheric pressure). Let us assume some water of condensation at 210 deg. to pass the trap—as water.

This water, on flowing into the pipe (H), enters a partial vacuum represented by 10 in. of mercury (less than atmosphere). In this (partial) vacuum, water boils at 192 deg. F. It is obvious that the 210 deg. water of condensation entering this condition of (partial) vacuum, will boil. A certain amount of it will turn into steam, although it passes the trap as water.

This "re-evaporated" steam will ascend through the pipe (L), go into the condenser and so to the steam-passed pots. It will add to the amount of water measured there. It will diminish the proportion of water which is credited as condensed in the radiator.

There appears to be no method of avoiding this result, or of assuming with certainty and exactness how much re-evaporation takes place under any given condition. However, while some amount of re-evaporation might make an unfavorable showing for some one trap tested by itself, when a considerable number of traps which function in a similar manner are tested under identical conditions, the amount of re-evaporation may be supposed to be approximately the same in each.

To this view the report notes one line of exception. If one trap passes hotter water than another, it is more likely to give re-evaporation. And if a trap



Types of radiator traps which underwent test.

passes steam, this would mean that the water passed is hotter still, and there would be still more re-evaporation. In short, if a trap condenses thoroughly,

there will be little re-evaporation; if a trap does not condense thoroughly, the steam which passes is likely to be exaggerated by re-evaporation.

Heating Business is Brisk But—It Can be Made Brisker

Singleness of Idea in Trimming of Window Will Achieve Better Results than if a Number of Objects are Allowed to Produce Jumbled Impression on Passer's Mind

STOVE and furnace trade this fall is reported better from all sources and from every angle than has been the case for some seasons back. Dealers are of the opinion that for some little time back, people in need of new heating equipment have been postponing the purchase in the hopes of falling prices. Repairs have been made until at last the old equipment will stand the strain no longer and there is now no alternative for the householder other than to replace his equipment with new.

Since early in September the volume of stove and furnace sales reported has been heavy as a consequence, and from indications there is still a considerable amount of this business yet unplaced—business that will be spread out over the period from now until the flying of the snows of early winter.

If you are selling heating equipment, it is only natural to expect that a certain amount of this extra business is coming your way. However, if you are among the wide-awake merchants who believe in giving any seasonable sales movement whatever additional impetus may lie within their power, your share will be proportionately greater.

Looking through the daily papers, one finds but very little advertising dealing with stoves and furnaces. Very well then, what little there is will stand out

just that much better and will carry that much more value—if the advertising is of a desirable nature.

Take, for example, an interesting advertisement run recently by a stove merchant. In large letters running in three lines across the top of the ad was the announcement: "A New National Holiday for Women Has Been Declared."

Naturally, this striking lead creates an interest that will cause one to read the smaller type which follows, and in which the following copy is used: "At last a national holiday that can be celebrated 365 days a year. It means absolute freedom from kitchen worries and work. Come down to our store and learn more complete details of this holiday which goes hand in hand with the purchase of a ——— range."

This is a line of advertising which bids fair to touch the hearts and pocketbooks of those who have heretofore been all too neglectful with regard to the comfort and convenience of those who spend much of their time and energy in the kitchen.

This scheme of advertising brings to mind a thought which probably never occurred to a great many people and, therefore, it has utility value; it strikes in a vulnerable spot and stands a very strong chance of bringing direct results.

(Continued on page 24)

A Big Opportunity for Plumbers Installing Factory Sewage Disposal Systems

Sewers and Public Water Supplies Not Absolutely Necessary—
Private Systems can be Installed—Many Favorable Features for
Factories in Rural Districts—Details of a Successful System

Written specially for Sanitary Engineer by EDWIN NEWSOME, Consulting Sanitary
and Heating Engineer

TRADE SHOULD TAKE A VITAL INTEREST IN GETTING FACTORIES TO LOCATE IN RURAL TOWNS

Author's Note.—During the past three or four months the writer has visited over 100 towns and villages of from a few thousand to two hundred population. The question of securing or not securing suitable factory locations in such small towns has scores of times hinged upon the question of water supply and sewage disposal systems.

Sanitary and heating engineers can perform a splendid duty and at the same time procure some nice business if, when the question of water supply and sewage disposal systems is discussed, the sanitary engineer or plumber could suggest that the initial outlay for a private system can easily be arranged at a moderate cost and that such city conveniences can be procured at less actual initial outlay than if a public sewage and water system was installed on purpose to draw such an industry.

The trade should do their part in trying to encourage factories and other industrial plants to locate in our small towns and villages.

FROM time to time it has been said that such and such a firm "would not locate here because we have no sewers or water system." As a result, many a small Canadian town or village that would have been in a much more prosperous condition to-day has one or two factories.

Most of these small towns have lots of labor, lots of railway facilities, and in many ways would have been a good location for the establishing of manufacturing industries. But, as referred to above, "there were no main sewers, water supplies, etc."

This stand no doubt has been taken by the executives of many industries in ignorance that one or two wells could very often be drilled, bored or dug and a small pumping system installed at a moderate cost. The charges for a public supply would likely have been more than enough to warrant the outlay and prove in many cases a paying investment.

The sewage disposal problem, too, is one that is easily overcome and the cost of such a system would likely also prove a paying investment. There is no doubt whatever as to being able to construct a private disposal system, as is proved at least in one instance, described here-with.

It must be stated that the nature of this particular industry and the size of it did not at first call for a very elaborate system, and in this case there was a water supply service available. But, in the first place, a cesspool was installed and it began to cause trouble. Then, again, the plant was to be enlarged, which made it necessary to plan and lay down a proper sanitary sewage disposal system.

This installation was designed and put into use several years ago and it was built to take care of the sewage from plumbing fixtures to be used by about 400 employees. The ground available is, as can be seen, located on the bank of the Canagagique Creek. At some seasons of the year it is pretty full of water and the writer was informed that the sewage from the cesspool was at one time polluting the water in this creek.

How to Plan a System

There are quite a number of people who have the idea that the size of a sewage disposal system largely depends upon the number of w.c.'s and other plumbing fixtures there are in a building. This is not the case, and, furthermore, many plants established in rural districts would have had more fixtures installed had not this idea been in the minds of the executives. The result has been that only one set of toilet rooms has been furnished, very often in an out-of-the-way location, causing a big waste of time on the part of the employees because of their having to walk long distances to and from the bench or work table to the lavatory.

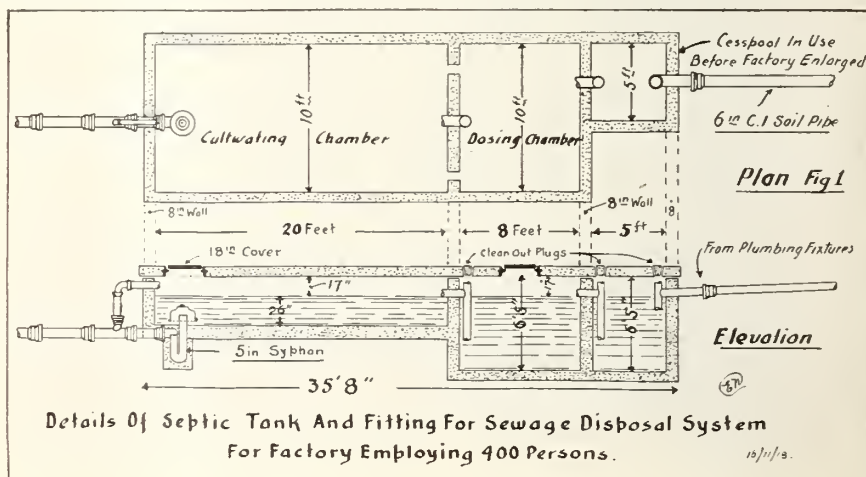
The size of a septic tank and sewage disposal system must be determined according to the number of persons employed, just as is the case with a residence. Sizes are always so arrived at. Then, again, the size of the septic tank, which, as a rule, has two compartments, is based upon the amount of sewage to be discharged by the syphon every twenty-four hours, which syphon is located in the dosing chamber. See Fig. 1.

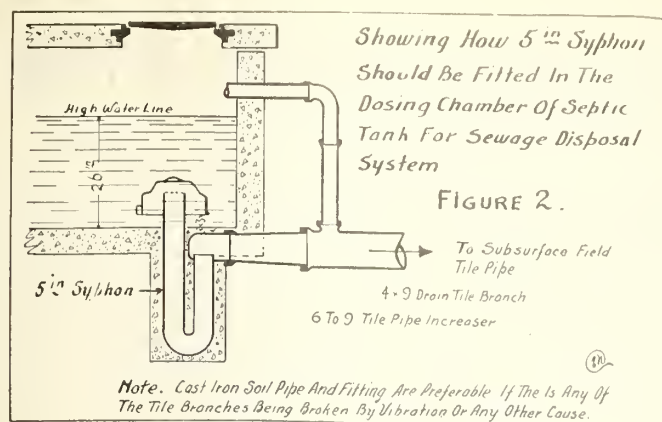
The cesspool, which is shown in both the plan and elevation, was not in any way disturbed. The plant now employs upwards of 400 persons, which is almost equal to the population of a small town, and the system is working so well that when the writer called, several years after the work was completed, the engineer of the plant could not tell just where the pipes or tanks were laid, he not having been employed there when the disposal system was installed. This was at least one proof that the system is working O.K.

The size of the discharge or dosing chamber is, it will be noted (see Fig. 1), 20 feet long, 10 feet wide and a total depth of 3 feet 7 inches. The depth of the sewage, however, is only 2 feet 2 inches, this height being necessary to discharge the 5-inch syphon. It will, therefore, be seen that this chamber contained approximately 434 cubic feet of sewage, or about 2,620 gallons.

The Amount of Discharge

It would appear that the discharge of sewage would amount to 434 cubic feet. This is not so, as will be explained by referring to Fig. 2, which shows a larger view of that portion of the dosing chamber with the syphon in place.





The lower edge of the syphon bell is 3 inches from the bottom of the tank. Then there is a small syphon break at the side through which air is drawn. This operation will be explained later. The action of the syphon is stopped when the sewage is 4 inches deep. Thus, out of the whole 434 cubic feet, 4 inches of sewage is left in the tank, making the amount of discharge at each operation about 384 cubic feet. The operation was timed to take place in this installation once every 24 hours or thereabout, so that there would be approximately 2,500 gallons of sewage flushed into the disposal bed of field tile every operation. As the number of people to be employed was at that time about 400, an allowance of about six gallons per person per day was made, which, according to the way the system has worked, is apparently all that could be desired.

The size of the cultivating chamber is arrived at in the following way. First, having decided upon the water allowance

per person per day, it is very good practice to make the cultivating chamber about 20 to 50 per cent. larger. Now turn to Fig. 1 again. There are three compartments, but this would not occur in regular practice. As stated previously, there was a cesspool in use. This is shown in the small square compartment and it was not disturbed in any way. But, in arriving at the size of the receiving or cultivating chamber, an allowance was made for the already-existing tank and it was connected as shown. The total area of the two compartments, however, is equal to about 20 per cent. more than the discharge from the dosing chamber. The reason why it was only 20 per cent. larger was that the area in which the disposal tile is laid is made up of cinders from the boilers and railway cinders. Being 20 per cent. larger also permits of more time for the bacteria in the cultivating chamber to break up the solids.

To many there appears to be something of a mystery about what is going

on in a septic tank, therefore a little explanation will be of interest.

First, all manner of domestic waste, paper and excreta from w.c.'s, soapy water and greases, etc., flow into the cultivating chamber. Septic action, or a form of fermentation, takes place like brewing. The solids are broken up in this compartment by anaerobic bacteria, a germ which does its best work in a dark chamber free from light and air.

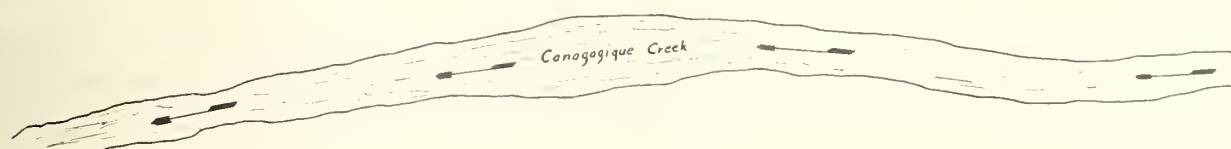
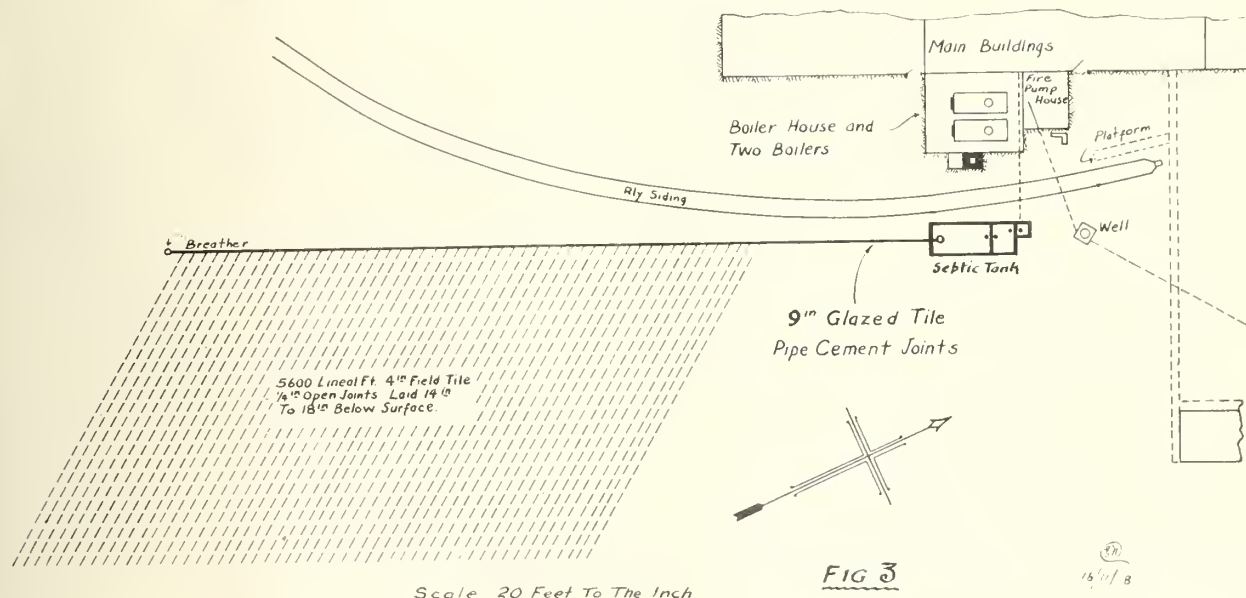
This anaerobic germ throws off carbonic acid gas, H_2CO_3 , and this gas must be carried off by way of the soil pipes which go up through the roof of the building. If the reader will note the complete plan, Fig. 3, and trace the pipe line from the end of the 9-inch main line, it will be found that the whole system is ventilated through this breather, so that no foul gases can accumulate anywhere in the system (a very necessary condition).

Now, the solids being all broken up, the effluent from the larger of the receiving chambers flows up through a pipe with a long leg into what is known as the dosing or syphon chamber. There is now little if any bacterial action taking place until the effluent is distributed into the field tile area.

Operation of the Syphon

Before allowing any sewage to enter the syphon or dosing chamber, the trap of the syphon must be filled with water; then place the bell on the top of the long leg and it will be found to be resting on the top, about 3 inches from the bottom of the dosing chamber. Having what is known, then, as "primed" the syphon, the whole system is ready for operation, that is, provided that the field

(Continued on page 26)



Complete Plan of Sewage Disposal System For Factory Employing 400 Persons

Tinsmithing and Sheet Metal Work

Skylights Over Garages and Power Plants Are Ever in Demand

The Working Drawing Shows How to Make a Pattern of a Skylight that Inclines Four Ways, With a Ventilator

Written for Sanitary Engineer by O. W. KOTHE, Principal St. Louis Technical Institute

TINNING shops doing tinning and plumbing have ample opportunity for making skylights in small villages over garages and power plants, as well as in cities. So here we take on a skylight that inclines four ways and has a ventilator of a rectangular design set in the centre and to which the various bars join. Now skylight work is simple in assembling and erecting, but the workman who has done little in the laying out of it, generally has considerable difficulty in understanding the various miters and positions used in the development. Much of this

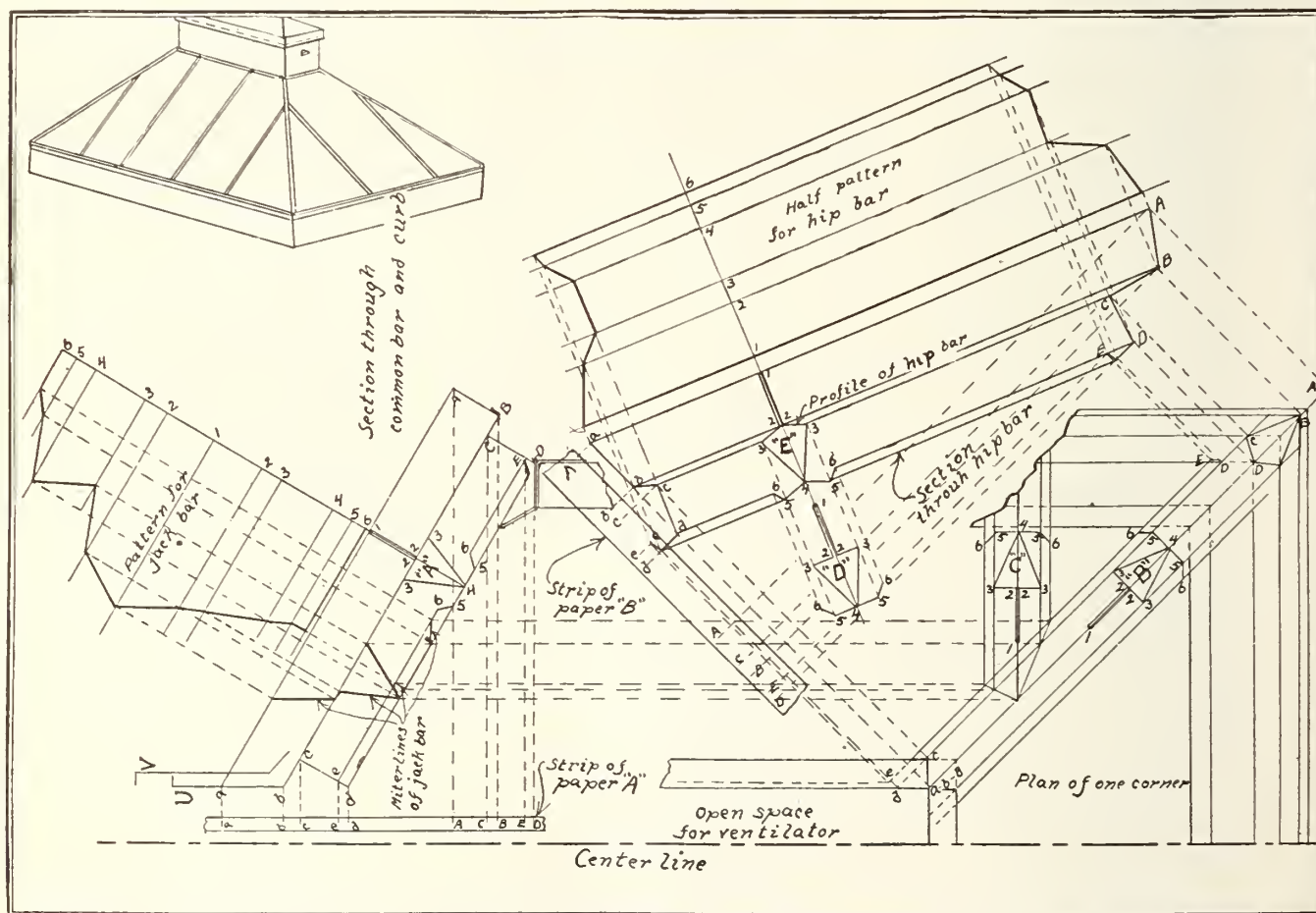
must be associated with the frame work on roofs of buildings, and when considered in that light, it should come easier.

We first draw the section through common bar and curb, making the pitch of skylight to a 30 deg. angle, as B-b. Then at right angles to it, detail the common bar "A," detail it so that it can be made out of the $7\frac{1}{4}$ in. strip of metal for average work, which enables getting four strips out of a 30 in. sheet. From each point as 1-2-3-4-5-6 in the section "A" extend lines both ways parallel with the line B-b. At a convenient place draw the upper ventilator bar U,

taking on the shape of the detail shown by a-b-c-d. Also detail the lower curb to the design you wish to make this and this gives the shape A-B-C-G-E.

We next develop a quarter plan of the hip, so we draw any line as A-a on a 45 deg. angle and from each point in the ventilator bar U, also from the lower curb, we drop lines indefinitely, to intersect this hip bar a-A. By this means, we draw the part plan of the curb and the ventilator bar. Next reproduce the detail "A" with all its points to the position of "B." Then from these points extend lines parallel to a-A until they intersect corresponding lines in the ventilator bar and the lower curb, which enables tracing the miter line as shown. These intersections are quite difficult to see through for a beginner, but the workman must watch his points and trace his lines of corresponding numbers until they intersect, and that is the only way you can draw the miter in the ridge and the curb. Observe

(Continued on page 27)



Garages and power plants in small towns, as well as other buildings requiring top ventilation, are frequently equipped with skylights of rectangular design. The tinsmith not familiar with all forms of mitering may save himself time and embarrassment by studying carefully the layout given.

Unusual Selling Stunts Are Put to Good Use by Maritime Plumber

Believes in Putting "Pep" Into Advertisements—Contrast With Usual Plumbers' Style Makes This Plan Very Effective

CHARLOTTETOWN, P.E.I.—Fred Trainor, a plumbing contractor of Charlottetown, has been conducting "A Bath a Day" campaign in and about Charlottetown. Mr. Trainor believes the early Fall period is the time to strike out for bath tub installations, and shower bath installations, so he has been concentrating on an advertising campaign, linking his watchword of "A Bath a Day," with his own business as a contractor.

Mr. Trainor has issued the little rhyme, which reads "A bath a day keeps you fit every way." He has been using this rhyme in most of his advertising and in conjunction with his slogan "Plumbing installed by Trainor is a guarantee nothing will be slighted."

The usual advertisement of a plumbing contractor is looked upon as a dry affair. A little more pep helps in this case. A little wit can work wonders frequently, as witness driving home the necessity of frequent baths, with the following joke:

Sergeant: "Did you take a bath to-day?"

Rookie Private: "No, sir. Is there one missing?"

An acrostic as part of an advertisement would add effectiveness to advertising, lending that singular touch. For instance, an acrostic composed as follows:

Plumbing that is flawless
Lengthens the lives of men, women, and kiddies.
Useless to say plumbing is unnecessary.
Medical men agree sanitary systems pay.
Baths daily are pep producers.
In hundreds of houses we have installed plumbing,
Naturally our experience is greatly in our favor.
Good plumbing is our motto.

In behalf of shower baths, a weather report style of advertisement can be inserted such as: "Weather Report for To-day—Showers in many homes of this city and suburbs, installed by — — the Plumber."

In this age of keen and abundant competition, the favor goes to those executing unusual ideas.

Plumbing has been considered a much too dry occupation in the past, despite the connection with so much water. With so many plumbing contractors in the field, it behooves all to digress from the beaten track and delve into untrod trails in order to attract attention and business. When a plumbing contractor buys advertising space in a newspaper he might better make the space a revenue-getter, than have it perform merely the function of adding to the coffers of the newspaper.



Sergeant—Did you take a bath to-day?
 Rookie—No, sir. Is there one missing?

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No. 20

Too Big a Difference

LARGE volume of consistent business at a small margin has been pointed to by business authorities as the palliative for many of the world's business ills to-day. There is a good deal of truth in it, too. These are times when people want value for their money. Value is being demanded in most cases of those who are employed by manufacturers in an endeavor that the manufacturer may be enabled to meet the keen competition of the open market in his product. The only way to successfully compete under such conditions is to exercise every plan tending toward more efficiency and to stimulate turnover so that the per unit overhead cost is reduced to the minimum. It is chiefly a case of the survival of the fittest and there is no place for the worker who does not earn his wage.

The building industry is a shining example of all that is the opposite to the desirable condition outlined. Here we have a very seasonable industry, highly speculative construction which in many cases shakes buyers' confidence, and an unwavering attitude on the part of workers for a high standard of wages even though consistent work is impossible under such conditions. This applies largely to plasterers, bricklayers, carpenters and laborers but it also applies largely to plumbers as well.

In this connection C. Howard Smith, President Canadian Manufacturers' Association, made an interesting comparison in an address recently delivered. He compares wages of these workers as follows:

	United Kingdom per week	Canada per week
Plumbers	\$18.50	\$55.00
Plasterers	18.15	55.00
Bricklayers	18.00	44.00
Carpenters	18.00	39.00
Laborers	13.25	20.00

A big spread is at once apparent between these scales of wages. In many cases these classes of workers are more seasonably employed in Canada than in England and feel they need the money. But it is just a question if this idea is not much overdone. It is not necessary for winter to prove such an obstacle to building as has been the case in the past and it would certainly help improve conditions generally for this trade to be put on an all year basis at a fair rate of remuneration. Building activity will not return to normal until wages of tradesmen are in keeping with agri-

cultural and industrial rates. This can be accomplished without any hardship to anyone by a concerted effort to make building an all year business.

Raising the Status

THERE has been a great deal of misuse of the word "engineer" recently, this term being applied to various groups which have very little connection with anything that represents engineering. Opposition to this was taken editorially in a recent issue of a trade publication dealing with the building industries, and Sanitary Engineer joins in condemnation of loose practice in the use of this term. Probably such practice has developed because of the fact that the term does not convey its true meaning as plainly as does the term "lawyer," "doctor," or "dentist." It means just as much to the engineering profession, however, as do those terms to their respective professions and it is up to those who bear this identification to see that the public is made well aware of what it means.

An indication of how far afield the term "engineer" has rambled is found in the fact that at the recent Canadian National Exhibition, a sign suspended advised passersby that the exhibitor in this instance was a "golf engineer." His duty was the laying out of golf courses. While this may call for some ingenuity and skill it is questionable whether it can be classed as engineering. There are also such terms as packing engineer, caterpillar engineer, vocational engineer.

The term "engineer" as applied to skilled sanitarians and heating operators, lends a certain dignity which is becoming to those who have put in their apprenticeship and who represent such an important profession. Unfortunately many such operators are not sufficiently aware of their own importance in modern civilization. As preventors of disease the sanitary and heating engineers are just as important in their profession as the doctor who is called to alleviate illness. It is up to every man in the industry to do his part to impress the public that his profession is one to be honored, then will he raise the status of his calling.

More Information Desirable

HOW much of the details of the business operations of a corporation should be disclosed in its annual report to shareholders? So long as dividends are maintained, few shareholders pay much attention to the company's statement, provided the published figures indicate that the dividend has been earned.

When the shares of a corporation listed on the stock exchange do not act in accordance with the predictions of those who have advised their purchase, the published statements of the corporation are widely discussed and analyzed. The favorite method seems to be to stress the value of the assets over liabilities, and to compare the book value of the shares with the market price. Strange to say, in these cases the market price of the shares is seldom affected favorably by these published analyses. They do not touch the real cause of the fall in price, which is usually due to smaller net earnings of the corporation. Few company statements give more than a skeleton trading and profit and loss account, and without a trading account showing purchases, sales and expenses, no adequate analysis is possible.

These analyses too would be more accurate if, instead of stressing the assets, the liabilities were dealt with, as these in reality are far more reliable indications of the worth of the company than the assets; they do not shrink in the process of realization. It is not what a man owns, but what he does with it, that decides his business standing, and this also holds true in the case of a corporation.

Why Some Plumbers Lose Money

AN OLD merchant once said that most failures were due to the use of hope rather than arithmetic in bookkeeping.

"Men first deceive themselves," he said, "and then they deceive others."

How true this is!

None of us likes to admit the truth, if it is to his detriment. We postpone unpleasant undertakings, and we try to make black white because it pleases us to do so.

I once knew a printer who was long on hope, but short on bookkeeping.

He had saved \$15,000 out of his earnings and profits in a partnership.

With this money, and some more which he borrowed from friends, he established a thoroughly modern plant.

He knew all about printing, but he knew nothing about bookkeeping. He went out and he sold work cheap. His bookkeeping, which he did mostly himself, showed a good profit. At the end of the first year he thought he had made so much that he bought an automobile for his family. The next year he made other large personal expenditures out of "profits." At the end of five years his creditors asked permission to have his books audited.

This audit was a difficult task, but when completed it showed a \$7,500 depreciation in the value of the plant, none of which had been charged off, while current liabilities exceeded current assets by \$10,000. Although this printer had started with a clean slate, he had gradually fallen behind in his accounts payable until he owed three times as much as he had due him on accounts receivable.

In other words, his net assets were \$17,500 less than when he began business.

He had confused gross profits with net profits; and he had failed to set aside a sum sufficient to take care of the wear on his machinery.

This is the kind of bookkeeping which is based on hope instead of arithmetic.

It is the explanation of suicidal price-cutting, for the price-cutter does not know he is headed toward bankruptcy.

Even in the handling of our personal affairs we would all be better off if we put less emphasis on hope and more on arithmetic.

We all know that some day we are going to grow old and reduce our earning capacity. We all know that seven-tenths of all persons over 65 years are dependent on others.

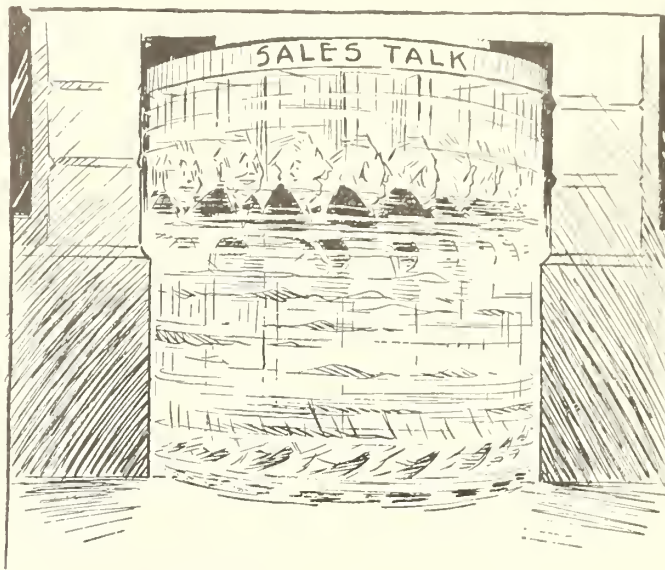
How much better off we would be if we would squarely face the situation, analyze the facts like a real bookkeeper and be ready to meet all contingencies.

When You're "Inside"--Stay There

Minute Message No. 33

Written for Sanitary Engineer by FRANK STOCKDALE

Sales Series



A SALE is like a revolving door. You're either on the inside or outside.

This is a tip to those who have a tendency to talk too much in making sales.

The main thing, of course, is to know when you are "inside"—that is, when you have reached the point where the customer is ready to buy.

This is done only through practice and observation. Watch carefully the actions, attitude and expressions of your customer.

There is no rule for closing the sale, because every customer is a rule to himself.

Selling is about one part talk, three parts demonstration of the goods and six parts judgment of what to say, when to say it and when to stop.

THINK IT OVER—APPLY IT TO YOUR BUSINESS

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News Notes From Coast to Coast

Doings in the Plumbing and Heating Industry

NEW FIRMS

Stratford, Ont.—P. Griffin, and H. Riggs, have opened a small brass foundry in this city, turning out plumbers' supplies and a number of novelty lines.

Winnipeg. — A. E. Green, late of the firm of Green & Litster, Ltd., has opened a plumbing and heating contracting business, with showrooms and offices at 237 Fort St.

BUSINESS CHANGES

Burks Falls, Ont.—Wm. Young has disposed of his plumbing and tinsmithing business to the Burks Falls Hardware Co.

INCORPORATION

Pneu Oil Burners, Toronto, has been incorporated for \$40,000 to manufacture hot air, steam, gas and oil furnaces, stoves and heating appliances, by John R. Rumball, Lawrence A. Landriau and Enoch G. P. Dean.

FIRE LOSS

Arnprior, Ont.—Adam Andrews, plumber and tinsmith, suffered a loss recently in a fire which did serious damage to a number of business properties.

Sault Ste. Marie, Ont.—Flockhart Bros., tinsmiths, 421 Queen St. East, suffered fire loss to the extent of \$250, covered by insurance, recently, when fire broke out on the second floor of the building. The cause is unknown.

PLUMBER INJURED IN FALL

Owen Sound, Ont.—W. A. Owen, a former local plumber, now in business in Jarvis, Ont., met with a serious and painful accident while working on a roof in that town. He slipped and fell twenty feet to the ground, the fall resulting in the breaking of both arms and one hip.

PLAN SANITARY CONVENIENCES FOR PARK

Toronto. — Plans for installing a system of water fountains and lavatories in High Park will be submitted to the city council next year by Parks Commissioner Chambers. This will be a large undertaking, but it is Commissioner Chambers' idea that the work be undertaken by sections, commencing the work next year.

CALLING FOR TENDERS

Tenders are being called for by the Public Works Department for heating, plumbing and electric wiring of the public and separate schools at Haileybury, Ont., Oct. 22 being named as the closing date.

LEAVES LARGE ESTATE

Toronto. — An estate valued at \$281,805 was left by the late John E. Laxton, former superintendent of the Consumers' Gas Co., and Harbor Commissioner. The estate included 916 shares in the gas company, valued at \$145,415.

TO CONSTRUCT JOINT SEWAGE SYSTEM

Bridgeburg, Ont.—It is proposed to co-operate with Fort Erie on the construction of a joint sewage system on Gilmore St., the dividing point between the two towns. Bridgeburg must also take immediate steps to improve its water system, the water now in use having been declared unsafe for drinking purposes.

TORONTO ENGINEER ON EXECUTIVE

Toronto. — R. O. Wynne-Roberts, consulting engineer, has been nominated by the nominating committee as one of the members of the executive committee of the Sanitary Engineering Division of the American Society of Civil Engineers for the year 1924.

TINSMITH'S INFORMER ARRESTED

Toronto. — Recently a local tinsmith was fined \$200 and costs for manufacturing a still. Now it has become known that E. Oliver, the Inland Revenue Department employee, who made the charge against him, had submitted the plan for the still and ordered it. As a consequence, a charge of having a still or apparatus, suitable for the manufacture of spirits, without a license, has been laid against Oliver, the charge being laid under a section of the Criminal Code, which says that any man who incites another to crime is guilty of the same crime.

FIX PERMANENT RATE FOR GAS

Toronto. — The fixing of a permanent rate for natural gas in Western Ontario municipalities is now a matter of the not far distant future, following investigations which are being made by the Natural Gas Reference Board of the Department of Mines. In past years, the cost of production has been the main consideration in fixing prices; now, however, the longevity of the field must be taken into consideration and a rate fixed which will mitigate against waste. Natural gas in Western Ontario is no longer

available for manufacturing purposes, and it is even passing rapidly as a means of heating. The time when it will be exhausted for practical purposes is said to be distinctly on the horizon.

RECEIVE MANY IMMIGRANTS

Ottawa. — From returns to date, it now seems certain that by the end of 1923 Canada will have received about 125,000 immigrants.

OBITUARY

Napanee, Ont.—R. C. Wright, aged 75, who died here recently, was for years a traveling salesman for the Gurney Foundry Co., and was formerly a member of the hardware firm here of Boyle & Wright.

Montreal. — Roy Ashton Hamaker, manager of the Montreal branch of the Canadian Johns-Manville Co., and formerly of Rochester, N. Y., was drowned in Lake St. Louis when he was swept from his yawl into the water during a storm. He is survived by his widow and two young sons.

CATALOGS FOR JAPAN

Ottawa. — In the recent disaster in Japan the office and records of the Canadian Trade Commissioner at Yokohama were completely destroyed. A. E. Bryan has cabled urgently requesting all Canadian firms interested in trade with Japan to forward catalogs, price lists, etc., immediately. His address for the present, it should be noted, is 504 Osaka Shosen Building, Kobe, Japan.

HEATING BUSINESS IS BRISK

(Continued from page 17)

Just as attractive advertising will do much toward the development of a greater fall business in heating equipment; similarly a well-designed window trim featuring this line of goods will have its effect upon trade and will draw into the store many prospects who otherwise might have made their purchases elsewhere.

Place one stove, a line on which you desire and are prepared to specialize, in the centre of your window and build up the rest of the trim around it, taking care that in the remainder of the trim you do not overshadow the main object. The stove may be placed in the window and several allied things suitably placed around it, as stove shovel, coal scuttle, lid lifter and a cooking utensil, with or without a ribbon leading from each accessory thing to its particular place of use on the stove. This also well illustrates the psychological principle that submitting objects to successive instead of simultaneous inspection produces the maximum of nervous difference.

Contracts Awarded

Brantford, Ont.—The roofing and sheet metal contract for the new high school has been awarded to Pursley & King, 639 St. Clarens Ave., Toronto, and that for the heating and plumbing to Fred Langdon, Whitby, Ont.

Birtle, Man.—J. W. Ramez, Portage la Prairie, has been awarded the plumbing contract for the \$10,000 hospital being built here.

Freeport, Ont.—The contract for plumbing in connection with alterations and addition to the waterworks system at the Freeport Sanitarium has been awarded to P. Atkinson, Preston.

Glace Bay, N. S.—The plumbing and heating contracts on the \$15,000 hall and shops being built for the Loyal Orange Lodge have been awarded to Stanley Richard, Fletcher St.

Hamilton. — P. Smith, Kensington Ave., has the heating contract in connection with church being built for the King St. Baptist Church.

Kapuskasing, Ont.—The plumbing and heating contract on community hall being built for the Spruce Falls Co. has been awarded to McAlindon & McCormick, Cochrane, Ont.

London, Ont.—R. Milne, 348 Talbot St., has been awarded the plumbing contract for a central heating plant to heat business block and adjoining buildings. E. Leonard, York St., has the boiler contract.

Montreal. — Douglas Bros. Company, 10 Benoit St., have the roofing contract in connection with \$200,000 church being built on Sherbrooke St., W.

New Liskeard, Ont.—The Haileybury Plumbing & Heating Co. have been awarded the plumbing contract for school for the R. C. Separate Board.

Niagara Falls, Ont. — Flynn Bros., Centre St., have the heating contract in connection with the \$11,000 addition to Nurses' Home for Niagara Falls Hospital Trust.

Ottawa. — Band & Cole have been awarded plumbing and heating contracts on the \$70,000 church being built for St. Paul's Methodist Church.

Victoria, B. C.—Heating and plumbing contracts on \$150,000 terminal building being erected for the C. P. R. have been awarded to W. R. Menzie & Co.

Kapuskasing, Ont.—McAlindon & McCormick, Cochrane, have been awarded the plumbing and heating contracts on the new Imperial Bank building.

Montreal. — E. R. Tucker, 120 Congregation, has the contract for the heating in connection with the \$25,000 molasses distillery being built for the Commercial Alcohol Co.

Ottawa. — Roofing, sheet metal, waterproofing, plumbing, heating and ventilating contracts on the \$300,000 building being erected for the Bank of Nova Scotia.

Smith's Falls, Ont.—John Fader has been awarded the plumbing contract, and Harry Hagen, the heating contract on the \$45,000 business block being built on Russell St.

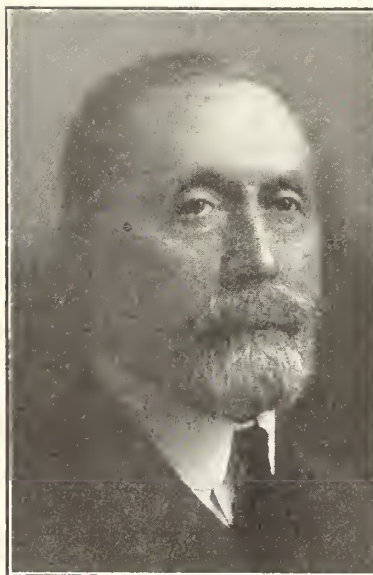
Toronto. — Duffort Bros., 862 Kingston Road, have been awarded the heating and plumbing contracts for \$15,000 public garage and showroom on Danforth Ave.

Brantford, Ont.—R. S. Hope, 217 Terrace Hill, has the heating contract for \$8,000 residence at 186 Dufferin St.

Sudden Death of Alexander Wheeler

With the sudden death in Toronto of Alexander E. Wheeler a few days ago, the Canadian metal trade lost one of its older and best-known figures. The late Mr. Wheeler was born in Toronto in 1849, commencing in business with Thos. R. Bain over 53 years ago, the two being the founders of the firm of Wheeler and Bain, manufacturers of corrugated iron, eavestrough, conductor pipe and jobbers in sheet metal.

Predeceased some twenty years by his partner, Mr. Wheeler continued an



Late Alexander Wheeler

active member of the firm right up to the time of his death, which occurred very suddenly on October 5.

The late Mr. Wheeler took an active interest in politics, having been a federal candidate once, opposing Judge Coatsworth. He was, at one time, president of the Reform Association.

The survivors include his widow, three daughters and two sons, the latter, George and Norman, being vice-president and secretary-treasurer respectively of the firm of Wheeler and Bain.

Hamilton. — Wm. Newell, James and Augusta Sts., has the plumbing contract, and Chas. Havers, Wentworth St., the heating contract on several residences being erected on Tragina Ave.

Kitchener, Ont.—D. Becker, New Hamburg, has been awarded the heating and plumbing contracts for four residences being built at Baden.

London, Ont.—Allen & Pope have the plumbing contract for L. Bradshaw's new residence on Dufferin Ave.

Montreal. — Jos. Paicment, 3488 St. Hubert, has the contract for the heating and plumbing in connection with two residences on St. Gerard.

Moncton, N. B.—The Moncton Plumbing & Supply Co. has been awarded the plumbing contract for an \$8,000 residence being built on Lime St.

Ottawa. — William Bros., Ottawa, E., have the plumbing contract, and the Pease Foundry Co., the heating contract for a double residence being built on Russell Ave.

Port Credit, Ont.—J. H. Doughty, Mimico, has the heating and plumbing contract on a residence being built on Mississauga Rd.

Port Credit, Ont.—J. Derry, New Toronto, has the plumbing and heating contract on a residence being built on Mineola Rd.

Stratford, Ont.—Cook & O'Donoghue, 111 Downie St., have the heating contract on 20 residences being erected by Wm. Newman, 55 Cherry St.

Toronto. — L. J. Harris, Coxwell and Poulton Aves., has the plumbing and heating contract on a \$7,500 residence being erected on Coxwell Ave.

Toronto. — Daniel Glynn, 992 Dundas St., has the heating and plumbing contract for a \$12,000 duplex residence at 566 Durie St.

Toronto. — W. S. Honeycombe, 124 Yarmouth Road, has the contract for plumbing in connection with \$25,000 residence being built on Forest Hill Rd. for H. H. Horsfall, Leaside.

WELSH TINPLATE CAPACITY GROWS

London, Eng.—One industry that is not feeling the effects of the industrial slump is the manufacture of Welsh tinplate. The tinplate factories are not only working at full capacity, but ten new mills are being erected at Llanelli and Pontardawe as speedily as possible to take care of the orders which are pouring in.

TIN PLATE MERGER ANNOUNCED

London, Eng.—An amalgamation has been arranged between the Gravesend Steel and Tin Plate Co. and the Richard Thomas Co., largest tin plate makers in the world. The combined weekly output will be approximately 1,200 tons of steel and 7,000 tons of tin plates.

Pictorial Records of Two Recent Outings in Sarnia



LEFT—Annual picnic of Sarnia Plumbers:

Left to right (standing)—Bert Bates, J. Foreman, W. J. Barric, W. H. Pinkett, James Sweet, J. B. Cain, of Detroit, Mich., and Clark Turner.

Left to right (sitting)—P. H. Hays of the Taylor-Forbes Co., D. Brown, Harry Hall, and George Thompson of the Chambers Electric Co.

Front row (left to right)—Fred Cook, Robert Kilpatrick, Alex. Joss, Robert Collum, A. R. Calcutt and E. H. Archer of the H. Mueller Mfg. Co., Ltd.

RIGHT—At recent salesmen's convention of H. Mueller Mfg. Co.:

Top row (left to right)—O. B. Mueller, L. H. Burlleigh, M. A. Schroder, E. Newsome, Wm. Twaits, L. O'Neill, B. F. Mueller.

Second row—R. W. Savage, J. R. Jackson.

Bottom row—J. Wright, J. J. Conway, A. B. Baily, O. G. McMann.



Tenders Wanted

Montreal, P. Q.—Tenders are being received by executive committee for electric, plumbing, heating, and ventilating, in connection with new city hall. No closing date set. Architect, Louis Parent, City Hall.

Ottawa, Ont.—Tenders are being received by the general contractor, Ed. Monette, King Edward St., no closing date set, on roofing, sheet metal, electric, plastering, and painting, in connection with \$40,000 fire station.

Asbestos, P. Q.—Poudrier & Boulet, general contractors, Black Lake, P. Q., are receiving tenders on roofing and sheet metal work in connection with \$250,000 church here.

North Bay, Ont.—Heating, plumbing and ventilating contracts are to be let in connection with \$26,000 parish hall being built for the Anglican church. E. Finnegan is the general contractor.

Sault Ste. Marie, Ont.—Contracts for heating and plumbing in connection with \$9,000 mission being built for the Presbyterian Church will be let by McIntyre & Kelly Bros., general contractors.

Tranquille, B. C.—Plumbing and heating contracts are still to be let on farm buildings being erected here, with H. J. Davies, Kamloops, as general contractor.

Cochrane, Ont.—Contracts for heating and plumbing on \$5,000 addition to hotel, James Palangio, owner and builder, are still to be let.

Toronto, Ont.—H. B. Kennedy Construction Co. are general contractors on \$20,000 garage going up at 360 Spadina Ave. Electric, heating and plumbing still to be let.

Toronto, Ont.—H. B. Kennedy Construction Co., general contractor, has the awarding of plumbing, roofing and heating contracts in connection with \$100,000 manufacturing building for the Empire Clothing Mfg. Co., Spadina Ave. and Phoebe St.

A BIG OPPORTUNITY

(Continued from page 19)

tile pipe has been laid as shown in Fig. 3.

In an ordinary house sewage disposal system the usual practice is to allow two lineal feet of field tile pipe 4 inches in diameter to each gallon of sewage to be flushed at each operation. But, on account of the close proximity of the creek, it was decided to furnish a larger number of field tile pipes than usual, so that, instead of only laying about 5,000 lineal feet, 5,600 feet were allowed, not counting the 9-inch main distributing pipe.

It might be asked, why allow such a large number? The reason is that, when a syphon operates, it flushes a large quantity of sewage, and, as the dosing chamber must empty each time the syphon works, the sewage must have somewhere to go, one lineal foot of 4-inch field tile holding about $\frac{1}{2}$ gallon of sewage.

Up to the present there has been nothing said as to what takes place in the ground. There is, however, another

kind of bacteria in the ground which begins to do its part, because the syphon tank is not all in a disposal system. The ground close to the surface is teeming with millions upon millions of what are known as aerobic bacteria, and these germs are the ones which finally take all the harm out of sewage, provided that they get a chance to co-operate with the air and the sun and maintain such a warmth that the fluid never freezes, not even in the most severe climate.

It has been found that some few persons have been somewhat skeptical about such a statement and, despite advice given to the contrary, have put the field tile pipe down several feet below the surface. There being fewer aerobic germs there, the sewage has frozen solid. So, while sewage discharged into pipes several feet below the surface will freeze, such effluent will not freeze if the pipes are from 14 to 24 inches below the surface.

Fig. 3 shows the complete area of the ground in which the disposal tile septic tank is laid, and, as stated before, the installation is working splendidly. Thus it will be seen that the question of disposing of sewage need not be a barrier to locating an industrial plant in a country town or rural district.

HEATING CONTRACT AWARDED

Brampton, Ont.—The contract for the installation of the heating plant in the Peel Memorial Hospital has been awarded to R. T. Harmsworth at a cost of \$4,000. The hospital will be opened on Armistice Day.

SKYLIGHTS OVER GARAGES AND POWER PLANTS

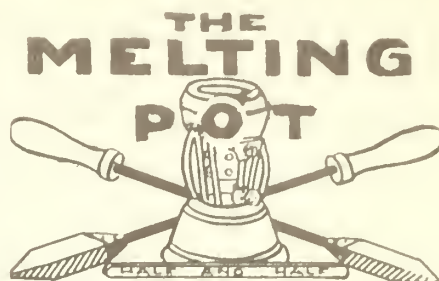
(Continued from page 20)

that neither the elevation nor the plan represents true length, as the elevation gives us the altitude, while the plan gives us the base. So we take a paper strip and set it as at "A" and from each point in the bar U, also the lower curb, we project horizontal lines to this paper strip. Next transfer this strip to all its points at right angles to a-A of plan. From each point in this paper strip "B," square out lines parallel with a-A as plan indefinitely. Now from each point in the miters of ridge and curb, square out lines at right angles until they intersect those from paper strip, as in points a-b-c-d and A-B-C, etc. Join these points with lines and you have the true diagonal elevation of hip.

To get the true profile of hip bar, that is, the angles at which to bend the glass shoulders, also to get the true girth, reproduce the detail "A" with all its points to the position "G," erect lines into section through hip and at these intersections you can trace the outlines for detail "E." Pick this girth from "E" and set it off on a line as 1-6 and

then develop the pattern from the miter lines as shown. As both halves of this hip pattern are alike, only a half pattern is here developed, but in the shop a full pattern should be laid out.

To develop the jack bar, draw any line square from curb, as at "C." Reproduce the detail "B" with all its points, as at "C." From these points draw lines to intersect the hip bar in plan, which will give this miter line as shown. From here lines are erected into elevation until they intersect corresponding lines and that will enable you to trace those having miter lines for jack bar as shown. The only way to get these is to check them up and follow them from point to point. In setting out the pattern the girth can be taken from either detail "A" or "C" and is set off at right angles to the section through common bar B-b. Then draw stretchout lines and from each point in the miter line for jack bar, square out lines to intersect similar lines in stretchout. Through these intersections, draw lines and you have the pattern for jack bar. The common bar can be laid out in the same way. Laps must be allowed for joining the various bars together when assembling the work.



THE ONLY WAY

A man tells of a plumber who started poor twenty years ago and has retired with a comfortable fortune of \$50,000. This money was acquired through industry, economy, conscientious efforts to give full value, indomitable perseverance, and the death of an uncle who left the plumber \$49,999.50.

REAL FRIENDS

Brown, a newly-wedded suburbanite, had promised to be home from town at six o'clock. At midnight his wife frantically sent six telegrams to as many friends living in town asking each if her husband was stopping with them overnight. Toward morning hubby and his broken down auto were approaching the house when a messenger boy rushed up with six telegrams. All of them read: "Yes, John is spending the night with me."

First College Student (over the phone)—"What are you doing?"

Second Student—"I just finished washing my B.V.D.'s."

Central (breaking in)—"I'm ringing them!"

Youthful Curate: "Will all those who have missionary boxes kindly send them in as soon as possible, as the Vicar wants to go for a holiday?"

THREE GOOD REASONS

Village Doctor (to the elder who is paying a call): "But surely, Saunders, you will have a drop of something before you go?"

Saunders: "No, thank ye, doctor, I've three gude reasons for refusing your hospitality. First, I'm the chairman of the local temperance society; second, I'm just gaen' tae a kirk meeting; and third, I've just had one."

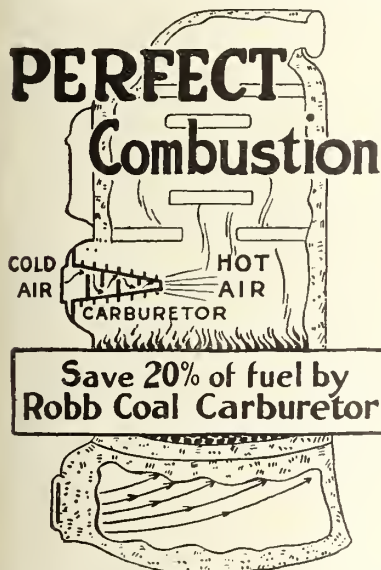
HER INTUITION

He, savagely (attempting to start car)—"This self-starter won't work! There is a short circuit somewhere."

She (sweetly)—"Well, why don't you lengthen it, dear?"—S. E.

New Goods of Interest to Plumbers

T. G. Griffith & Company have added a new line in the form of the Robb Coal Carburetor. This device, it is claimed by the manufacturer, saves coal, inasmuch as more heat is obtained from a ton



of coal by the proper mixture of oxygen, introduced over the fuel bed.

This carburetor is a casting, and is bolted to each fuel door of the furnace, and which projects into and above the fuel bed. The carburetor is constructed with ribs on the outside to absorb the heat of the fire, and at the same time strengthen the casting to withstand the heat. On the inside are a series of baffles and ridges, which also go to strengthen the carburetor casting and

divide the air that is drawn through into a number of small streams which become highly heated and spread fan-like among the combustible gases, producing perfect combustion, consuming the gases and preventing a large part of the smoke, which would otherwise pass off unconsumed.

It is claimed that a number of tests have been made on steam boilers with and without carburetors which have proved that from ten to twenty per cent. less coal is consumed to evaporate the same amount of water when carburetors are used than without.

STELCO FELT ROOFING NAILS

The Steel Company of Canada, of Hamilton, have placed on the market, recently, a high-grade roofing nail, described as the "1 Stelco Felt Roofing Nail." The head of this nail is of a checkered pattern, as shown in the accompanying sketch, and is 9-16 in. in diameter.

The special features claimed for the Stelco felt roofing nail are: The sharp point, the round shank, semi-barbed full length, and well-centred head—this last being a particular advantage with a nail having such a wide surface.

In addition to the use of these nails in connection with the laying of all kinds of felt and other roofing, they are also largely used with wire lath.



Catalogs and Booklets

Those interested in any of the catalogs described below can procure a copy of the same by writing direct to these firms. Mention that you noticed this in Sanitary Engineer.

IMPERIAL RADIATOR HANDBOOK

The Imperial Radiator Co. of St. Catharines, Ont., have recently issued a new handbook in which they have presented in a very complete manner, their line of boilers and radiators, and also their other lines of fittings and specialties, etc. This volume is small enough to be carried around in the pocket and it contains 170 pages of reading matter and illustrations. It is well bound and the paper contained in this book is of fine quality. As well as describing the goods manufactured by the Imperial Radiator Co., it contains much useful information for the plumber, sanitary engineer, and steamfitter, such as lists and description of symbols used in reading blue prints, also many tables of weights, measures and pressures.

Market Conditions and Tendencies

Price Trend on Sanitary and Heating Supplies

Markets at a Glance

WITH the fine, exportable wheat crop that was harvested this Fall being at present marketed, improvement in business conditions should soon be noticed. Cattle exporting conditions being settled satisfactorily and a noticeable increase in demand for Canadian pulp and lumber should also have a favorable effect on the coming year's pros-

perity. Seasonable lines are moving well in all centres, especially stoves, heaters, ranges, furnaces, boilers, and other heating equipment. Trade in these lines is going ahead in full swing and dealers in heating lines report very favorably on business which has been done this Fall and which is in progress at the present time.

Montreal Markets

MONTREAL, October 13.—Dealers and jobbers in the local market report that a noticeable improvement in trade has been felt during the past two weeks. Canada plates are firmer in price, due to a noticeable scarcity in some lines. Lower prices are now in effect on Dominion wipers. Prices on range boilers are now more settled and quotations are the same as issued two weeks ago.

The metal market continues rather easy in tone with copper being exceptionally weak. The general falling off in business in the U.S.A. seems to have forecast a further lowering of prices at least temporarily.

Collections are reported as showing a slight improvement.

LOWER PRICES IN EFFECT ON DOMINION WIPERS

Montreal.

Prices on Dominion wipers show a decline of one cent per pound, and the following prices are now in effect locally:

COTTON WASTES—	Per lb.
Cream polishing	0 24
White, XXX extra	0 20
White, XX grand	0 18½
White, XLGR	0 17
X Empire	0 15½
X Press	0 14
Colored—	
Fancy	0 15½
Lion	0 14
Standard	0 12½
Popular	0 10½
Keen	0 08½
Wool Packing—	
Arrow	0 25
Axle	0 21
Anvil	0 17
Dominion Wipers—	
White cotton	0 18
Colored cotton	0 14

SALES IN CORRUGATED SHEETS QUITE SEASONAL

Montreal.

Dealers in corrugated sheets state that sales in this line are quite seasonal. Prices are steady and are quoted locally as follows:

CORRUGATED SHEETS—	Per 100 sq. ft.
No. 28 gauge	7 00
No. 26 gauge	7 50
No. 24 gauge	10 00
No. 22 gauge	12 50
No. 20 gauge	14 00
No. 18 gauge	19 00
Less 10 per cent.	
Lighter than 24 gauge and wider than 27 ins.,	
75 cents per square extra	

TRADING IN CLOSET GOODS FAIRLY ACTIVE

Montreal.

Dealers report that trading in closet goods is fairly active at the present time. Prices remain steady and are in effect locally as follows:

CLOSET COMBINATIONS—	
Low Down Outfits,	each
Closet, standard outfit, oak.....	24 00
Do., post hinge seat	24 50
Do., oak vitro or Pussyfoot	24 00
Do., post hinge seat.....	24 50
Do., mahogany vitro or Pussyfoot, post	
hinge seat and cover	27 00
Do., vitreous china, oak post hinge seat	
and cover	29 00
Do., vitreous china, mahogany post	
hinge seat and cover.....	29 50
Do., white vitro or Pussyfoot, mahogany	
post hinge seat and cover	30 00
Do., enamelled iron tank, oak post	
hinge seat and cover	28 75
Do., enamelled iron tank, mahogany	
post hinge seat and cover.....	29 00
Add for ¾" valve on supply pipe	1 25
Add for spud	0 60
Add for reverse trap bowl.....	1 50
Add for syphon jet bowl	7 00
Deduct for supply pipe	0 80
Deduct for floor hinge.....	0 60
Richelieu bowl	8 00
Washdown bowl with spud.....	9 90
Reverse trap bowl with spud.....	9 90
Syphon jet bowl with spud.....	15 40
CLOSET SEATS—	
Oak post hinge seat and cover	3 85
Oak wood strip seat and cover.....	3 50
Mahogany finish post hinge seat and	
cover	4 05
CLOSET TANKS—	
Low down, oak vitro or Pussyfoot with	
fittings less seat	12 50
White vitro or Pussyfoot with fittings,	
flush elbow and supply	16 50
Vitreous china tank with fittings, flush	
elbow and supply	16 00
Enamelled iron with fittings, flush elbow	
and supply	18 90

ENAMELLED WARE PRICES STEADY AT RECENT DECLINE

Montreal.

Prices are steady on enamelled ware following the recent decline announced in the last issue. Sales in this line are reported to be of a very satisfactory nature. Current prices are given herewith:

ENAMELLED WARE—

Sinks, flat rim—	1 only	2 only	3 only
16 x 24	\$ 7 50	\$ 7 40	\$ 7 30
18 x 30	8 70	8 60	8 50
20 x 30	9 90	9 80	9 70
Bath tubs, roll rim, 4, 4½, 5 feet, 24 to			
30 in. wide			51 40
Bath tubs, 5½ feet,			57 10

Lavatories—

17x19 in. Apron F189 or P4045.....	15 30
18x24 in. Apron F154 or P3845 or P3847	23 60
18x21 in. Apron F169 or P4205.....	17 60
17x19 in. Roll rim. F241 or P4345.....	12 60
Less 35 per cent.	

LEAD AND ZINC GOODS SELLING IN GOOD VOLUME

Montreal.

Lead and zinc goods are reported by dealers to be selling in good volume. Prices show no change during the past two weeks and are in effect locally as follows:

LEAD AND ZINC PRODUCTS—

Lead pipe, per 100 lbs., up to 2 in.....	14 50
Do., 2 in. to 8 in.....	15 50
Do., 8 in. and over.....	16 50
Lead waste, per 100 lbs.....	15 50
Lead wool, lb.....	0 113
Lead sheets, 2½ lbs., sq. ft. lb.....	\$ 10½
Lead sheets, 3 to 3½ lbs., sq. ft. lb.....	0 10
Do., 4 to 8 lbs., sq. ft. lb.....	0 09½
Cut sheets, ¾ lb. extra and cut sheets	
to size 1c. lb. extra.	
Solder, wiping, lb.....	0 24½
Solder, commercial, lb.....	0 25
Solder, strictly, lb.....	0 27
Solder, guaranteed, lb.....	0 29
Solder wire, lb.....	0 39
Zinc sheets, casks	0 11
Do., broken lots	0 12

GOOD SALES IN METAL LATH; PRICES STEADY

Montreal.

Sales on metal lath are reported as being quite good and dealers are quite optimistic as regards fall business. Prices remain steady and are being quoted as follows:

METAL LATH—	per sq. yd.
Painted—	
26 gauge	23c.
24 gauge	25c.
32 gauge	32c.
Galvanized, 5c. per sq. yd. extra.	

CANADA PLATES SCARCE; PRICES ARE FIRMER

Montreal.

Prices are very firm on Canada plates owing to a scarcity of some of the better selling lines.

Prices in effect are quoted herewith:

BLACK SHEETS—

10 gauge, base	4 75	5 00
12 gauge	4 85	5 00
14 gauge	4 95	5 10
16 gauge	5 05	5 15
18-20 gauge	5 20	5 25
22-24 gauge	5 20	5 25
26 gauge	5 25	5 40
28 gauge	5 35	5 50

GALVANIZED SHEETS—

	Queen's Head	Fleur de Lis
18-20 gauge	6 90 7 40	6 65 7 15
22 gauge	7 15 7 65	6 90 7 40
24 gauge	7 25 7 75	7 00 7 50
26 gauge	7 50 8 00	7 25 7 75
28 gauge	7 75 8 25	7 50 8 00

Other Brands—

10% oz.	7 75	8 00
28 U. S. gauge	7 00	7 75
28 U. S. gauge	7 50	7 75
24-22 gauge	6 85	7 10
20-18 gauge	6 65	6 75
16 gauge	6 50	6 60

Above prices are for ½ ton lots in English iron and 1000 lb. lots in American iron with an extra charge of 25c for less quantities. Extra for sheets 3 ft. wide, 28 gauge and 10% oz. 25c per 100 lbs.

Further extra for sheets 4 ft. wide according to gauge.

TIN PLATE—

20 x 28 x 100 lbs. basis	15 50
20 x 28 IC, 112s	16 00
20 x 28 IX, 112s	18 00
20 x 28 IXX, 56s	11 00
20 x 28 IXXX, 56s	12 00

TERNE PLATE—

20 x 28 IC, 112s, 200 lbs.	14 50
20 x 28 IC, 112s, 214 lbs.	15 00

CANADA PLATE—

Half bright, 60s	6 00
Half bright, 52s	5 90
Blued 52s	5 90
Blued 60s	6 00

PRICES ON WROUGHT PIPE REMAIN STEADY

Montreal.

Prices on lapweld and butt weld pipe remain steady. Sales are said to be quite good with prices still being based on price list No. 59, which was issued some time ago.

WROUGHT PIPE

Price List No. 59. April 24th, 1923.
Standard Butt weld Pipe S/C per 100 feet.

Size	Steel Blk.	Gen. Galv.	Wrot. Blk.	Iron Galv.
½ in.	6.00	8.00	.....	.....
¾ in.	4.32	6.30	7.56	9.60
1 in.	4.32	6.30	7.56	9.60
1 ½ in.	5.53	6.97	7.82	9.35
2 in.	6.79	8.40	9.55	11.27
2 ½ in.	9.69	12.07	13.77	16.32
3 in.	13.11	16.33	18.63	22.08
3 ½ in.	15.68	19.53	22.28	26.40
4 in.	21.09	26.27	29.97	35.52
4 ½ in.	33.35	41.54	.....	.....
5 in.	43.61	54.32	.....	.....
5 ½ in.	56.12	69.00	.....	.....
6 in.	66.49	81.75	.....	.....

Standard Lapweld Pipe S/C per 100 ft.

Size	Steel Blk.	Gen. Galv.	Wrot. Blk.	Iron Galv.
2 in.	24.42	29.60	33.30	38.85
2 ½ in.	36.27	44.46	50.31	59.09
3 in.	47.43	58.14	65.79	77.27
3 ½ in.	57.04	69.92	79.12	92.92
4 in.	67.58	82.84	93.74	110.09
4 ½ in.	78.74	96.52	114	133
5 in.	91.76	112.48	133	155
6 in.	1.19	1.46	1.73	2.02
7 in.	1.55	1.90	2.21	2.62
8 in.	1.63	2.00	2.33	2.76
9 in.	1.87	2.30	2.68	3.17
10 in.	2.23	2.83	.....	.....
11 in.	2.14	2.62	3.04	3.58
12 in.	2.76	3.38	3.91	4.01

COMPRESSION GOODS ARE FAIRLY ACTIVE

Montreal.

Quotations on compression goods are steady following the recent reductions in some lines. Sales are said to be show-

ing considerable activity and trading in this line generally is of a very satisfactory nature. Quotations in effect locally are as follows:

VALVES AND BIBBS—

Compression work, standard	48%
Fuller work, standard	30%
Quick opening, compression bibbs	45%
Bath cocks, quick opening	53%
Bath cocks, compression	45%
Basin cocks, quick opening	50%
Flatway stop and waste cocks, std.	56%
Roundway stop and waste cocks, std.	42%
Brass steam cocks, standard, ¼ in.	25%
Radiator valves, standard	55/25%
Do., removable discs	55/25%
Globe, angle and check valves, std.	25%
Gate or straightway	25%
Emco globe valves	33%
Emco check valves	33%
Jenkins globe, angle, check and swing check	plus 15%
Jenkins gate or straightway	plus 11%
Jenkins iron body, globe and angle	plus 10%
Jenkins iron body, gate	12%
N. P. "O" and "S" traps	34%

SALES IN PIPE FITTINGS FAIRLY ACTIVE

Montreal.

Good sales in pipe fittings are reported during the past two weeks. Discounts remain unchanged and are in effect locally as follows:

PIPE FITTINGS—

Cast iron fittings	10%
Plugs, cast iron	10%
Do., solid	10%
Do., countersunk	10+
Bushings, cast	15%
Do., malleable	15+
Unions	30%
Flanged unions	10%
Flanged fittings	27½%
Dart unions, black, ½ to 2 in.	27½%
Do., ½ in., 2½ in., and larger	10 and 10%.
Do., galv. add to black	27½%
Nipples, ½ to 4", close and short	45%
Do., long	50%
Do., 4½ to 8", close and short	35%
Do., long	40%
Couplings, 4" and under	25%
Do., 4½" and larger	5%

Malleable Fittings—

Price list effective June 1st, 1922. Discount 63 per cent.

BRISK TRADE NOTED IN RADIATORS AND BOILERS

Montreal.

Dealers in radiators and boilers report that a good steady business in this line has been maintained for some time and that prospects for a good volume being done this fall are very bright. Prices show no change and are in effect locally as follows:

RADIATORS AND BOILERS—

Radiator list prices are for 1, 2, 3, 4 and 5 column radiators, per sq. ft.
45 in. to 38 in., \$1; 32 in., \$1.10; 30 in., \$1.15; 26 in., \$1.20; 23 in., \$1.26; 22 in., \$1.30; 20 in., \$1.36; 18 in., \$1.40; 16 in., \$1.50; 14 in., \$1.55; 13 in., \$1.60. Discount 44 per cent for hot water, and 45 per cent. for steam.

Wall radiators—5 ft., \$1.15; 6 ft., \$1.10; 7 ft., \$1.05; 9 ft., \$1.05; 12 ft., \$1.05; Discount 41 per cent.

Boilers—Round water boilers, sizes from 0 to 10, 52 per cent. off list. Square or sectional hot water or steam boilers, 15 in., 3 per cent. with Ontario Government trimmings, list. Square or sectional water boilers, 19 in. to 36 in., 8 per cent. Square or sectional steam boilers, 19 in. to 26 in., 8 per cent. Ontario Government trimmings, list plus 7 per cent. Square or sectional water or steam boilers, 48 in., list plus 10 per cent. With Ontario Government trimmings, list plus 18 per cent.

Round steam boilers, standard trimmings, 16 per cent. Ontario Government trimmings, 13 per cent.

F.o.b. Montreal. Toronto. Guelph.

SCRAP MARKET QUIET WITH PRICES STEADY

Montreal.

Dealers in scrap materials report that prices are steady and that trading is noticeably slow. Indications are that

an advance in price in practically all lines will take place in the very near future. Prices existing at the present time are as follows:

SCRAP

Automobile Tires	0 50
Rubber Shoes	0 02
Yellow brass	0 06½
Red brass	0 08½
Light brass	0 04½
Scrap zinc	0 05
Lead, heavy	0 05
Lead, tea	0 03
Light copper	0 09½
Heavy copper	0 11½
Wrought iron, lt. Rd. No. 1 per gr. ton ..	14 00
Malleable scrap (ton)	16 00
Pipe scrap (ton)	8 50
Heavy melting steel	9 50
No. 2 bushing	5 50
Boiler plate	12 00
No. 1 machinery cast	20 00

PRICES ON RANGE BOILERS NOW MORE SETTLED

Montreal.

Prices on range boilers are now more settled with discounts the same as issued two weeks ago. List and discounts prevailing locally are as follows:

RANGE BOILERS—

5 Gallon	\$13 50
12 "	14 00
18 "	15 00
25 "	16 50
30 "	special 9 50 net
35 "	20 50
40 "	22 75
52 "	38 00
66 "	60 75
82 "	74 00
100 "	103 00
120 "	117 00
144 "	164 00
168 "	187 00
192 "	210 00

Discount Standard, 45 per cent.; Extra heavy, 40 per cent.

SOIL PIPE PRICES FIRM AT FORMER LEVELS

Montreal.

Dealers report a good volume of business in soil pipe during the past two weeks and prospects are good for fall trading. Discounts remain unchanged and are in effect locally as follows:

SOIL PIPE—

2 and 3 inch	20%
4 inch	25%
5 and 6 inch	20%
8 inch	net

FITTINGS—

2 to 6 inch	37½%
8 inch	net

WEAKNESS IN COPPER FEATURE OF INGOT METAL MARKET

Montreal.

The metal market continues rather easy in tone with copper being especially weak. The general falling off in business in the U.S.A. seems to have forecast a further lowering of prices, at least temporarily.

TIN.—The chief feature of this metal has been the premium ruling for October delivery in London, and there is now a wide spread between spot and futures. New York refuses to respond to the advances in London and the market shows a hesitating tone with prospects of a further decline. The local market is easy at 47½ cents per pound.

COPPER.—The decline this week is even more extensive than previously reported and evidently drastic methods are to be employed to reduce production. With electro selling at 12½ cents in New York, many mines are operating at a loss, but it remains to be seen whether

even this figure will induce any particular demand. At the same time, today's price is low and values can hardly go much lower. The local market is weak at 19 cents for electro and 18½ cents for casting.

LEAD.—This metal is the steadiest on the list and with production and consumption fairly well balanced, prices are practically unchanged from last week. The local market is steady at 8½ cents.

ZINC.—Although the prospects for this metal are fairly good, there is a sagging tendency to the market both in

London and East St. Louis. There is no profit to the smelters at present levels and any increase would see a sharp recovery in price. The crux of the situation lies in the U.S.A. as there is a certain amount of export business going, but local demand is dull. The local market is quiet at 9 cents per pound.

ANTIMONY.—This metal is very dull and there seems to be little demand at the present time. The local market is dull and prices are unchanged at 8½ cents for English and 8 cents for Chinese.

Toronto Markets

TORONTO, October 13.—Local dealers and jobbing houses report that business has been very active in all seasonable lines during the past two weeks, heating equipment sales being particularly good.

Globe, angle and check valves have advanced about five per cent., and gauge glass washers are also higher in price.

Declines have occurred in melting pots, and some lines of iron and steel.

Stronger tones are noticeable in connection with the prices on Canada plates, cotton waste, and galvanized sheets, and easier tones in regard to black and blue sheets, pig iron and ingot copper. The scrap market has been very slow with prices at low levels.

Collections are slightly improved in most centres of Ontario.

NEW PRICES ISSUED ON VALVES 5 PER CENT. HIGHER

Toronto.

New prices are issued on Standard Globe, Angle and Check valves. The former discount of 23 per cent. is now replaced by 20 per cent., and the old discount of 28 per cent. on Jenkins pattern disc valves is replaced by 25 per cent.

Discounts on other lines are as given herewith:

VALVES AND COCKS—		
Compression work—Standard	48%	
Fuller work—Standard	30%	
Basin Cocks, Fuller, No. 0	30%	
Nos. 1 and 2	30%	
Bath cocks—compression	40%	
Flatway stop and waste cocks, Std.	56%	
Brass steam cocks, ½" to 2"	50%	
Do., 2½" to 3"	43%	
Radiator valves—Standard	55-25%	
Do., removable disc	55-25%	
Globe, angle and check valves, Morrisons	10%	
Gate or Straightway	10%	
J. M. T.	plus 5%	
J. M. T. C.	net	
J. M. T. gate valves	net	
Emco Globe and Check, standard	20%	
Emco disc	25%	
VALVES, FOOT—		
	Blk.	Galv.
1¼	0 72	1 00
1½	0 88	1 25
2	1 20	1 75

DECLINE NOTED IN PRICES OF MELTING POTS

Toronto.

Melting pots have declined in price in some makes. The new prices being quoted are as follows:

5 inch, 50c. each; 6 inch, 75c. each; 8 inch, \$1.40 each.

TARRED FELT NOW SELLING AT \$3.40 PER CWT.

Toronto.

Tarred felt prices are about five cents lower at present with some dealers than was formerly the case. The price

of \$3.45 per cwt., which has been in effect, has been replaced by the new price of \$3.40 per cwt.

Dry carpet felt and asphalt felt prices have not been changed for some time.

Prices are considered to be at a low level, as the general undertone in the raw materials market is fairly strong and some manufacturers claim, on account of the increasing prices of rags and other raw materials used in the manufacture of ready roofings and felts, that an increase in price is justified on these lines, but on account of conditions prevailing at the present time, no changes have yet been made. Prevailing felt prices are given herewith:

FELTS—	
Carpet Felt, 16 oz.	4 35
Carpet Felt, 20 oz.	4 35
Carpet Felt, 24 oz.	4 35
Asphalt Felt, 10 lbs.	3 45
Asphalt Felt, 15 lbs.	3 45
Asphalt Felt, 25 lbs.	3 45
Tarred Felt, 7, 10, 16 oz.	3 40

CANADA PLATE PRICES FIRMER; SOME SIZES SCARCE

Toronto.

Some sizes of Canada plates are quite scarce at the present time, some dealers being right out of ordinary 52's and ordinary 60's.

Prices have firmed up considerably, most noticeably on the two sizes mentioned above.

Formerly, ordinary 60's were selling at from \$5.70 to \$6.10 per box, and 52's were selling at from \$5.40 to \$6 per box. The lower of these figures is not applicable now, and the prices are on ordinary 60's, \$6 to \$6.10 per box, and on 52's, \$5.90 to \$6 per box.

The range of prices on these and other sizes is given herewith:

CANADA PLATES—		Per box
Ordinary, 75s	.....	5 85
Blued, 75s	.....	6 15
Blued and oiled, 75s	.....	6 25
Polished, 75s	.....	7 05
Ordinary, 60s	.....	6 00
Blued, 60s	.....	6 00
Blued and oiled, 60s	.....	6 10
Polished, 60s	.....	6 90
Ordinary, 52s	.....	5 90
Blued, 52s	.....	5 60
Blued and oiled, 52s	.....	6 00
Polished, 52s	.....	6 80
Welsh polished, 60s	.....	7 35
Welsh polished, 52s	.....	7 25

NEW PRICES ISSUED ON GAUGE GLASS WASHERS

Toronto.

New prices are issued on flat and round gauge glass washers, which are advanced over prices formerly quoted.

The new levels being quoted are given herewith:

GAUGE GLASS WASHERS—		cents per doz.
Flat washers, ½ inch	.....	12
Flat washers, ⅝ inch	.....	14
Flat washers, ¾ inch	.....	16
Round washers, ½ inch	.....	21
Round washers, ⅝ inch	.....	25
Round washers, ¾ inch	.....	25

LOWER PRICES ON SOME LINES OF IRON AND STEEL

Toronto.

Dealers report that local sales of late have been more diversified, and this fact along with the fact that surplus stocks, which have been on the market in many lines since the war and which have been the means of continually upsetting prices on the market, are showing signs of being very nearly exhausted and not nearly as many cases of price cutting are existent. This stabilizing of iron and steel market prices is expected to have a favorable effect on business in these lines and better business is looked for in the near future.

Hoop iron has eased off in price to dealers.

Hoop iron heavier than 1 inch x 20 gauge, which has been selling at \$5.50, is now being sold at \$5 per cwt., and hoop iron 1 inch x 20 gauge and lighter which has been selling at \$6, is now selling at \$5.50 per cwt.

The revised iron and steel list of base prices is given herewith:

IRON AND STEEL—		Per cwt.
Bars, steel	base 3 75	3 90
Bands, 3-16 in. and lighter	4 25	4 50
Hoops hevaier than 1 in. x 20G	5 00	
Hoops, 1 in. x 20 G. and lighter	5 50	
Shapes, structural	4 00	4 25
Shapes, smaller than 1 in.	4 00	
Sheets, Galv., base	6 50	6 65
Sheets, black, base	5 50	5 65
Sheets, blue, base	4 50	4 75
Plates, ¼ in. and heavier	3 90	4 00
Plates, 3-16 in.	4 25	4 40
Cold rolled steel, rounds	5 25	
Sleigh shoe steel	4 10	4 15
Cold rolled flat square, Hex.	5 75	
Tool steel, high grade	30 00	
Drill steel	18 50	
Crucible cast sheet	30 00	35 00

PRICES SLIGHTLY EASIER ON BLACK AND BLUE SHEETS

Toronto.

A slightly easier tone is noted of late on black and blue sheets at basic sources. Prices to dealers are not as yet affected; those formerly published are still being quoted.



Makes Sales— Makes Friends

MUELLER A-2280 Combination Sink Faucet appeals instantly to every woman—unnecessary to urge its strong points—they show at a glance—that's why it sells quickly and easily. Its many convenient uses makes a friend and a prospective future customer.

Mueller Combination Sink Faucet A-2280

(Gives water in any part of sink
—not confined to certain radius)

Lessens dishwashing drudgery—sprays flowers—cleans vegetables—fills pails on the floor—cleans the sink—and saves the woman's hands.

Raising or depressing the center knob gives hot, cold or tempered water through spout or spray.

Rapid construction—cone seat washer—3 feet of good red corrugated hose—a high grade **MUELLER** product at a reasonable selling price netting you a good profit.

Order a sample today. Fully warranted.

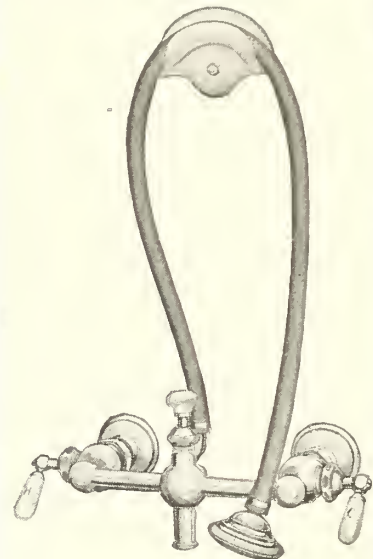
H. MUELLER MFG. CO., LIMITED
Sarnia, Ontario

Water, Plumbing and Gas Brass Goods and Tools

American Factory at Decatur, Illinois, U. S. A.
Branches, New York and San Francisco

Mueller Metals Co., Port Huron, Mich., Makers of
"Red Tip" Brass Rod; Welding Rod; Brass and
Copper Tubing; Forgings and Castings in Brass
and Bronze; also Brass Screw Machined Products.

This **MUELLER** Faucet makes it easy to wash the dishes, without making the hands red and rough.



No. A-2280 (Patented)
can be quickly installed on any regulation sink, and will last a lifetime.

Strike Settlement Helps Stove Sales

THE prospects for stove and furnace trade this season show a marked improvement over the last two or three years, and it is the opinion of Sanitary Engineer that a good season's trade may be expected.

No doubt electric cooking during the last few years has affected the sale of regular coal ranges in some of the larger centres, but in other parts it is still too expensive to be used extensively.

There is a very brisk demand for both stove and furnace repairs this season. Possibly the early cool weather has caused the public to think of these things sooner.

One factor that we believe will help stove and furnace business this season is that the question of coal supply has been

settled, and, even though the price is higher, the public know what they are going to get. There is a feeling in some quarters that this will create renewed interest in baseburners for heating on account of the great economy in fuel which they show.

The warm week that has just passed has in a good many cases turned out to be a week of very fine business with manufacturers. This is different from last year, inasmuch as at this time last fall a week of warm weather occurred, and in almost all cases manufacturers reported a sag in orders as being the result. This fact goes a long way toward proving that general conditions are in a much healthier state than they were a year ago.

STRONGER TONE NOTED IN COTTON WASTE PRICES

Toronto. A stronger tone is noted in prices of all lines of cotton waste.

Though the prices to dealers have not been changed as yet locally, no lower prices are looked for. If any movement is made, it is expected to be in an upward direction.

Prices on all lines of cotton waste have been advanced one cent per lb. in U. S. A.

Cotton thread mills are not working full time, and as there is a good amount of business moving now in this line, a slight scarcity has been noticed of late.

Prices in effect now are given herewith:

COTTON WASTES—	
XC.....	015½
XXX extra	0 20
X. grand	0 18½
XLGR.....	0 17
X. Empire	0 15½
X. press.....	0 14
Colored, No. 1	0 14½
No. 17	0 14½
No. 1A.....	0 13½
No. 1B.....	0 11½
Fancy	0 15½
Lion	0 14
Standard	0 12½
Popular	0 10½
Keen	0 08½
X	0 17
Above lines subject to trade discount for	
Cream, polishing	0 24

SOIL PIPE AND FITTINGS SELLING IN GOOD VOLUME

Toronto. Soil pipe and fittings prices are the same as formerly quoted, no change having been made in the discounts. Effective discounts are as follows:

SOIL PIPE AND FITTINGS—	
2 inch	Less 20%
3 inch	Less 20%
4 inch	Less 25%
5 and 6 inch	Less 20%
8 inch	net

FITTINGS—	
8 inch fittings.....	net.
2 to 6 inch	Less 37½%

SEASONABLE SALES RECORDED IN GALVANIZED STEEL CORRUGATED SHEETS

Toronto. Dealers report that seasonable sales have been made during the last two weeks in corrugated, galvanized steel

sheets. Prices on these lines have not changed for some time past, and the discount is still 10 per cent. off list prices. Existing quotations at present are given herewith:

CORRUGATED SHEETS—		Per 100 sq. ft.
No. 28 gauge		7 00
No. 26 gauge		7 50
No. 24 gauge		10 00
No. 22 gauge		12 50
No. 20 gauge		14 00
No. 18 gauge		19 00
Less 10 per cent.		
Lighter than 24 gauge and wider than 27 ins.,		
75 cents per square extra.		

SCRAP MATERIALS MOVING VERY SLOWLY

Toronto. Though the prices remain as published formerly, and no reductions are noted, the fact still remains that scrap materials are moving very slowly and business is not at all good at present in this line. Current quotations are given herewith:

SCRAP MATERIALS—		f.o.b. Toronto
Gross Tons—		
Scrap Iron		
Heavy melting steel		11 00
Scrap pipe		7 00
Steel turnings		9 50
Malleable scrap		16 00
Rails, scrap		12 00
Net tons—		
No. 1 cast		19 00
Stove plate		16 00
Car wheel (std.)		15 00
Scrap Metals		
Heavy copper wire		12 00
Light copper		9 00
No. 1 composition		9 00
Red brass turnings		8 00
Light brass		4 50
Heavy yellow brass		6 50
Heavy lead		5 25
Tea lead		3 25
Scrap zinc		5 00
Aluminum sheet and clippings		14 00
Aluminum cast		13 00
Hard lead		4 25
Scrap Rubber		
Boots and shoes		1 75
High rubber boots.....		1 50
Auto tires		0 25

LEAD AND ZINC GOODS STEADY IN PRICE

Toronto. Lead and zinc goods prices remain steady at levels formerly quoted.

Business is rather quiet in these lines at present.

Prices now effective are given as follows:

LEAD AND ZINC GOODS—	
Lead pipe, per 100 lbs., up to 2".....	14 50
Do., 2" to 8"	15 50
Do., 8" and over.....	16 50
Lead waste, per 100 lbs.....	15 50
Note—Lead pipe is subject to a discount of 10 per cent.	
Lead traps and bends	15%
Lead wool, lb.	0 14½
Lead sheets, 2½ lbs., sq. ft. per lb.....	0 12½
Lead sheets, 3 to 3½ lbs.....	0 11 ½
Do., 4 to 8 lbs., sq. ft. lb.....	0 10 ½
Cut sheets, ¾ c. per lb. extra.	
Cut sheets, to size, 1c. per lb. extra.	
Solder, guaranteed, lb.	0 30
Do., strictly, lb.	0 29
Do., commercial	0 26½
Do., wiping	0 27
Do., wire	0 34½
Zinc sheets, casks, lb.....	0 11¾
Do., do., less, lb.....	0 12¾

FALL RADIATOR AND BOILER BUSINESS VERY BRISK

Toronto. Heating contractors and dealers report that strong sales have continued to be the case ever since the advent of the cooler weather, and that good business in these lines is being done at the present time. Practically every heating firm has had as much business as could be

In U. S., some of the independent mills are cutting prices on some lines to obtain good-sized orders, as bookings are getting scarcer and business may be taken on at lower figures in order to keep mills operating. Prices effective now are given herewith:

TANK STEEL PLATES—	
¾-in. and heavier, base	3 60
3-16 in.	3 95
BLUE ANNEALED SHEETS—	
10 gauge, base	4 50
12 gauge	4 55
14 gauge	4 60
16 gauge	4 65

BLACK SHEETS—	
18-20 gauge	5 45
22-24 gauge	5 50
26 gauge	5 55
28 gauge	5 65
A charge of 25c per 100 lbs. is made for less than case lots. An extra 10c. per 100 lbs. is also charged on sheets 26 in. wide.	

PIG IRON BASIC PRICES ARE STILL WEAKER

Toronto. Basic prices of pig iron in U. S. have again taken a decline. Prices existing to-day are \$9 per ton cheaper than the peak price of a few months ago. Prices in effect in local markets have not been lowered.

PIG IRON—(Price per ton)—	
In ordinary quantities	31 30

INGOT COPPER MARKET TONE IS VERY WEAK

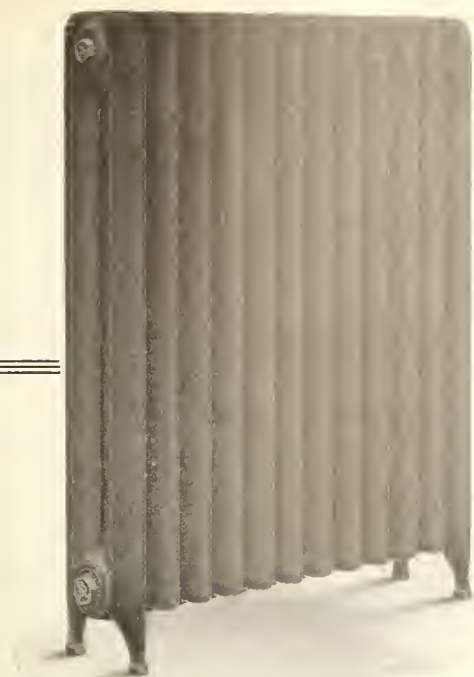
Toronto. Very little ingot metal is being purchased these days. Business is decidedly slow in these lines.

Prices remain firm locally and no changes have been made.

Copper ingots in U. S. are very low in price and further weakening is almost a daily occurrence. No buying, however, is being done in this metal of any account and it will be rather interesting to note just how low producers will let the price go.

Business in general in the metal trades seems to have been somewhat slower during the past two weeks and, should this business brighten up, it is believed by many that this would have a steady effect on the lowering price of copper. Prices in effect are given herewith:

INGOT METALS—	
Copper \$18.00 to \$19.00; Tin \$45.00 to \$46.00;	
Lead \$8.00 to \$8.25; Spelter \$9.00; Antimony,	
\$8.25 to \$8.50; Aluminum, \$23.00 to 25.00.	



Here is Heating Business Within Easy Reach

People in your own circle of friends, old time customers of yours, business acquaintances; among these there are many preparing to go through another winter with an antiquated heating system.

A suggestion from you—a few words of explanation about the many wonder-

ful heating features of the "New King" Boiler; its fuel economy and its moderate price, will serve to bring you much profitable business.

Then to make the heating job perfect, instal Imperial Radiators.

Your copy of our catalogue is here; write for it.

Imperial Radiator Company, Limited

Head Office and Works: St. Catharines

BRANCHES

TORONTO—228 St. Helens Ave.

MONTREAL—1 Oak Street

HAMILTON—District Representative, W. Burrow, 115 Victoria Avenue, S.

AGENCIES

J. T. Blyth, 100 Standard Bank Building, Ottawa, Ontario.

J. H. Ashdown Hdwe Co., Ltd., Winnipeg, Man.

J. H. Ashdown Hdwe Co., Ltd., Saskatoon, Sask.

T. L. Peck Co., Ltd., 1038-40 Homer Street, Vancouver, B. C.

Canadian Fairbanks-Morse Co., Ltd., 106-8 Dupont St., Quebec, P.Q.

J. H. Ashdown Hdwe Co., Ltd., Calgary, Alta.

Carroll-Wilson, Limited, Edmonton, Alta.

F. S. Coombs, 136-8 Lower Water Street, Halifax, N.S.

comfortably handled this season, and there is yet much work by way of repair jobs and new installations, to be done before the real cold weather arrives.

Prices are given herewith on some of the lines called for every day:

RADIATORS AND BOILERS—

Revised radiator list prices are for 1, 2, 3, 4 and 5-column radiators per square foot.

38 in., \$1; 32 in., \$1.10; 30 in., \$1.15; 26 in., \$1.20; 23 in., \$1.26; 22 in., \$1.30; 20 in., \$1.36; 18 in., \$1.40; 16 in., \$1.50; 14 in., \$1.55; 13 in., \$1.60.

Discount on 2, 3, 4 and 5 column standard sizes, 44 per cent. for water and 45 per cent. for steam.

Discount on 1-column standard size, and 2, 3, and 4-column hospital sizes 36 per cent. for water and 37 per cent. for steam.

Discounts on 1 column hospital size water 22 per cent. Steam 23 per cent.

Wall radiators—5 ft., \$1.15; 6 ft., \$1.10; 7 ft., \$1.05; 9 ft., \$1.05; 12 ft., \$1.05. Discount 41 per cent.

BOILERS—

Water: Round 52 per cent. off list. Square 8 per cent. off list.

Steam:

Round, 13 per cent. off list; Square, list plus 7 per cent.

COKE AND CHARCOAL TIN PLATES HAVE SEASONABLE SALES

Toronto.

Coke tin plates and charcoal tin plates have had average and quite seasonable sales during the past two weeks. Prices have not been changed from the levels given herewith:

PLATES, (COKE TIN)—

28x28 100 lbs. basis, box.....	15 00
20x28 IC, 112s. box	15 50
20x28 IX, 112s. box	18 00
20x28 IXX, 56s. box.....	10 60
20x28, IXXX, 56s. box.....	11 50
20x28, IC Terne, 112s. box.....	15 00

PLATES (CHARCOAL TIN)—

20x28, IX, 56s. box.....	9 50	10 00
20x28, IXX, 56s. box	11 00	11 50

TIN PLATES—(For Boilers)—

14x60 IXX, 56 sheets per case..	12 50	12 00
14x60 IXXX,	12 50	12 00

TINNED SHEETS FOR MILK CANS—

16½ x 41¾ 18 ga.	9 65	9 15
21 x 41¾, 18 ga.	9 65	9 15
30 x 72, 20 ga.	14 50	14 00
30 x 45¾, 2 ga.	10 15	9 65
30 x 50, 22 ga.	10 25	9 75
30 x 54, 22 ga.	10 30	9 80
30 x 78, 22 ga.	10 35	9 85
30 x 72, 22 ga.	15 00	14 50
36 x 84, 22 ga.	15 00	14 50
42 x 84, 22 ga.	15 75	15 25
48 x 96, 22 ga.	16 50	16 00
30 x 50, 24 ga.	10 25	9 75
30 x 54, 24 ga.	10 30	9 80
30 x 58, 24 ga.	10 35	9 85
30 x 72, 24 ga.	15 00	14 50
36 x 84, 24 ga.	15 00	14 50
42 x 84, 24 ga.	15 75	15 25
30 x 72, 26 ga.	15 50	15 00

BOILER STANDS REMAIN FIRM IN PRICE AT OLD LEVELS

Toronto.

Range boiler stands remain firm in price at levels established some months previous. Sales have been good in this line, as the demand for boilers has been heavy of late. Prices on most of the good selling lines are given herewith:

BOILER STANDS—

Each—5 gal. \$1.50; 12 gal. \$1.50; 18 gal. \$1.50; 25 gal. \$1.50; 30 gal. \$1.50; 35 gal. \$1.75; 40 gal. \$1.90; 52 gal. \$2.10; 66 gal. \$2.25; 82 gal. \$2.50; 100 gal. \$3.80; 120 gal. \$4.00; 144 gal. \$4.00; 168 gal. \$4.00; 192 gal. \$4.00; Adjustable Stands 12 to 14 in., 45c. Stahl boiler stand, 60c.

PRICES ON GALVANIZED SHEETS SLIGHTLY FIRMER

Toronto.

An undertone which denotes a slightly firmer note is evident in connection with galvanized flat steel sheets.

Prices, however, are not changed, and those existing at present are given herewith:

SHEETS, GALVANIZED—

Premier and Apollo Brands—	per 100 lbs.
10¾ oz., 3 ft. wide.....	7 25
10¾ oz. narrower	7 05
28 U. S. gauge, 3 ft. wide....	6 85
28 U. S. gauge, narrower....	6 50
26 U. S. gauge.....	6 20
22 and 24 U. S. gauge	6 05
18 and 20 gauge,	5 90
16 U. S. gauge	5 75
12 and 14 U. S. gauge.....	5 60

F.o.b. and delivered in Toronto.

An extra 20c. per 100 lbs. is charged for Keystone and Premier brands copper-bearing sheets.

Queen's Head	Fleur de Lis
28 gauge, base	7 25
26 gauge	6 85
24	6 55
22	6 40
18 to 20 ga.	6 00
28 gauge base	7 00
26	6 60
24	6 30
22	6 15
18 to 20 ga.	5 75

GOOD FALL SALES OF EAVES-TROUGH AND CONDUCTOR PIPE BEING MADE

Toronto.

Regular lines of eavestrough and conductor pipe have been selling very well during the past two weeks. The fall being here, builders are anxious to finish

up the houses that they have been building during the summer, which has created a good demand for these lines, as well as for outlets, elbows, cut-offs, tubes and conductor hooks. Prices which are in force at the present time are as follows:

TROUGH (Eave)—

O. G. Square Bead—	Per 100 ft.	Per 100 ft.
8 inch	\$15 90	15 inch.....\$34 50
10 inch	17 70	18 inch..... 44 00
12 inch	21 20	

O. G. Round and Half Round—

8 inch	16 90	15 inch..... 35 50
10 inch	18 70	18 inch..... 45 00
12 inch	22 20	

Less 65 and 5 per cent.

PIPE (Conductor)—

Plain, round or corrugated	Per 100 ft. in 10 ft. lengths
2 in., in 10 ft. lengths, list.....	18 40
3 in., in 10 ft. lengths, list.....	22 30
4 in., in 10 ft. lengths, list.....	29 60
5 in., in 10 ft. lengths, list.....	48 00
6 in., in 10 ft. lengths, list.....	58 80

Less 65 and 5 per cent.

CONDUCTOR ELBOWS—

Plain, round or round corrugated:	
2 inch, list	\$ 5 25
3 inch, list	6 00
4 inch, list	10 50
6 inch, list	29 00
Outlets, cut offs, tubes and conductor hooks	
List less 50 and 10 per cent.	

STOVE PIPE DAMPERS SELLING IN LARGE QUANTITIES

Toronto.

Dealers report sales of stove pipe dampers to be very good at the present time. Large quantities have been sold during the past two weeks. Current prices are as follows:

DAMPERS (Cast Stove Pipe)—	Doz.
6 in.	1 70
7 in.	2 10

Winnipeg.

WINNIPEG, October 13.—With grain moving and money going into circulation, a stimulating effect on business is being noticed by dealers and jobbing houses. Red sheet packing and cotton candle wicks are quoted at higher levels. Porcelain basins move upward. There has been a revision in discounts on compression bibbs and also on basin and bath cocks. Boiler brushes show a slight reduction. Prices for the most part are holding fairly well.

COTTON CANDLE WICK PRICES MOVE UPWARD

Winnipeg.

The price of cotton candle wick has moved upward, and quotations are 65c. per lb. This rise in price is in conjunction with the recent general rise in cotton products as a result of the poor crops which have been harvested this year in the southern states.

BOILER BRUSHES SHOW A SLIGHT DECLINE

Winnipeg.

A slight decline is recorded on oval wire boiler and furnace brushes. Present quotations are \$6 per dozen.

Sales are reported to be better this season in these lines.

RED SHEET PACKING PRICES ARE ADVANCED

Winnipeg.

Red sheet packing shows an advance in quotations and present prices are quoted at 37c. per lb. Sales have been

fairly good on sheet packings during the past two weeks.

ADVANCE NOTED IN PRICES OF PORCELAIN BASINS

Winnipeg.

A slight advance is recorded on porcelain enameled basins. Twelve-inch basins, round, with patent overflow, are quoted at \$3.50 each. Oval basins with patent overflow 14 x 17 inches in size are quoted at \$5.10 each, and size 15 x 19 are quoted at \$6 each. Sales of bathroom fixtures during the past two weeks have been made in good volume. Part of the good trade experienced in these lines recently is attributed to the fact that a good many houses which were started in the summer are being finished up, and interior fixtures are being installed.

MISCELLANEOUS COCKS AND BIBBS AT LOWER LEVELS

Winnipeg.

Lower discounts are in effect on sill cocks, wash tray bibbs, boiler drain



Stepping Out After It

WINTER is just over the hill. Crisp nights and fresh mornings herald its coming.

In this keen Autumn weather with its foretaste of arctic rigors to come, you, the Sanitary Engineer, can sell more sewage disposal systems than at any other time of year.

In October and early November your efforts to induce suburbanites and farmers to provide themselves with indoor toilet comfort are crowned with greatest success. You have the active co-operation of our old friend Jack Frost himself. Step out and get their business.

**The Anthes Syphon is the Heart of the
Disposal System**

Anthes Foundry

LIMITED

Toronto and Winnipeg

Manufacturers of Cast Iron Soil Pipe and Fittings



Difficulties Experienced in Obtaining Japanese Trade

THOUGH a lot of figuring has been done regarding the inquiries for galvanized sheets, received recently from Japan, concessions in price having been made in these figures by producers in Canada, as well as substantial reductions in profits being figured on, with the end in view of keeping labor employed, it has been found impossible to arrive at a price low enough to compete with English mills for the delivery of galvanized steel sheets for reconstruction and roofing purposes, etc., to Japanese ports.

The cost of chemicals, labor, taxes, and, in fact, all overhead expenses with the exception of electricity are lower in England, making lower primary pro-

duction costs on steel galvanized sheets than production costs of the same materials from Canadian mills. The freight rates from England to Japan are much cheaper than from Ontario mills to the same ports.

Local factories can cope with American mills for Japanese business, but it has been found impossible under existing circumstances to cope with England in these lines.

About the only way in which Canadian mills could entertain Japanese trade in galvanized sheets, profitably, would be in the event of English firms getting filled up with orders and being unable to ship promptly, or if they found it necessary to raise the price of their products above present levels now being quoted.

cocks, compression stop cocks and angle lavatory stops. Revised discounts are as listed below:

MISCELLANEOUS COCKS AND BIBBS—

Sill Cock, N.P.	47% Off
Wash Trap Bibbs	46% Off
Boiler Drain Cocks	76% Off
Compression Stop Cocks	45% Off
Lavatory with Wheel Handle	42% Off
Stop and Waste Cocks	34% Off

REVISION IN DISCOUNTS ON COMPRESSION BIBBS

Winnipeg.

Compression bibbs show a revision in discounts and prices are lower. The following revised list of discounts is now in effect:

COMPRESSION BIBBS—

Plain Compression Bibbs	45% Off
Self-Closing Bibbs	37% Off
Compression Hose Bibbs	45% Off
Compression Flanged Bibbs	45% Off
Rapidac Flanged Bibbs	42% Off
Extra Self Closing Bibbs	37% Off
Plain Compression bibbs with solid Flange	45% Off
Plain Compression bibbs with screw Flange	45% Off

BASIN AND BATH COCKS SHOW A DECLINE

Winnipeg.

Lower price quotations are in effect on basin, pantry, and bath cocks, and the following discounts and prices are now prevailing:

BASIN COCKS—

Compression basin cocks, 4 arm, brass handle, N. P., list price, less	35%
Do., Without Index Handle, list price less	35%
Rapidac Basin Cocks, list price each	2 56
Do., Large pattern, each	1 98
Quick Pression Basin Cocks, list price less	47%
Self-Closing Basin Cocks, list price less	37%

PANTRY COCKS—

Compression Pantry Cocks, N. P., with tail pieces, list price less	32%
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BATH COCKS—

Compression bath cocks, N.P., without tail pieces, list price less	42%
Do., With tail pieces, list price less	42%
Quick Pression Bath cocks, N. P., list price less	47%
Midget compression bath cocks, brass handle, list price less	35%

PRICES ON LEAD AND ZINC GOODS UNCHANGED

Winnipeg.

Lead and zinc goods are reported by dealers to be moving in seasonable quantities.

No changes have occurred in prices during the past two weeks on these lines.

WROUGHT PIPE PRICES ARE FIRM AND SALES ARE GOOD

Winnipeg.

Prices on wrought pipe continue firm. Sales are reported as seasonable, with prices showing no change during the last half month.

SOIL PIPE PRICES FIRM AT FORMER LEVELS

Winnipeg.

A fair volume of business is moving in soil pipe and fittings. Prices show no change over those issued in Sanitary Engineer issue of Oct. 1.

CORRUGATED SHEETS SELLING IN SEASONABLE QUANTITIES

Winnipeg.

The trade report a steady demand for corrugated sheets. Quotations continue steady at levels previously established.

OAKUM SELLING IN FAIR QUANTITIES AT \$4.27 A BALE

Winnipeg.

Dealers report sales of oakum as seasonable and quotations are \$4.27 a bale, and in less quantities 10c. per pound.

NEED BETTER WATER SYSTEM

Port Stanley, Ont.—Sir Adam Beck is much interested in the village's water supply, pointing out that the present system of using filtered lake water is totally inadequate and that steps will have to be taken in the near future to insure plenty of good water. Advice on the same subject was secured from experts some three years ago, but the cost of the proposals proved too great for the actual work to be proceeded with at the time.

Mutual Insurance Companies Claim to Have Advantage

ONE of the big advantages claimed for the mutual form of insurance over that of the stock company form is that the policyholder can be guaranteed 100 per cent. protection and 100 per cent. payment of losses, this feature being made possible through the fact that every policyholder in a mutual company is a co-partner in the company, sharing in profits and losses alike.

Thousands of policyholders, chosen from the highest class business men and citizens, insure in the average mutual fire insurance company. Each shares in the profits made in the way of annual dividends. Should the company be so unfortunate, and such cases are exceptionally few, as to suffer a loss ratio in any single year large enough to wipe out the surplus and impair the reserve, each policyholder would be assessed for any part of, or an amount equal to, the premium written in his policy.

Mutual protection is the only form of insurance that can give the 100 per cent. payment of loss guarantee for this reason—the policyholders make up the loss. They do this willingly, as an extra assessment cannot compare with the large amount of money saved through annual dividends. On the other hand, if a stock company's surplus and capital is impaired by excessive losses, only a few stock holders are involved and can require the company to settle losses at so much on the dollar.

Figures covering insurance activities in connection with the largest fires of the past century on this continent show that the mutual companies were able to pay their losses in full in nearly every instance and that even in those rare instances when this was not possible, paid much higher rates than the payments made by most of the stock companies dealing with the same fire. Also, fewer of the mutual companies by far were forced out of business through disastrous fires.

It is also shown that of all the extra assessments levied by mutual companies, and they have been very few, the average of the assessment has been 25 per cent. of the annual premium. It is claimed by the mutual companies that this extra assessment is paid every year by the holders of stock company policies, the difference between the cost of the two forms of insurance making for the same as an extra assessment by the stock company.

ELECTED VICE-PRESIDENT

Toronto. — Word has been received by the Sheet Metal Products of Canada that G. A. Boyle of that firm has been elected vice-president of the Canadian Chamber of Commerce in London, England. Col. A. Lorne Hamilton, of the British Empire Steel Corporation, is president and Hon. F. C. Wade, agent-general for British Columbia, one of the vice-presidents.

Would You SPECIALIZE For 4 Cents a Week?

WHETHER you are a manufacturer, wholesaler, master plumber, journeyman, apprentice, salesman or occupying any other position in relation to the plumbing and heating industry in Canada, you will find that the receipt of YOUR OWN copy of **Sanitary Engineer, Plumber and Steamfitter of Canada**, twice each month, will greatly help you to keep in close touch with what is doing in all branches of the industry.

Qualified technical men and special representatives in every important centre throughout the country keep the pages of each issue interesting and practical. The big problems of the industry are analyzed and the most authoritative data secured for the guidance of those in the industry.



KEEPING IN CLOSE TOUCH WITH ALL DEVELOPMENTS IN THE INDUSTRY; KNOWING WHAT OTHERS ARE DOING AND WHY, IS THE WAY TOWARD PROGRESS.

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.....1923

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Galt Brass Co., Limited, Galt.
Kerr Engine Co., Ltd., Walkerville.
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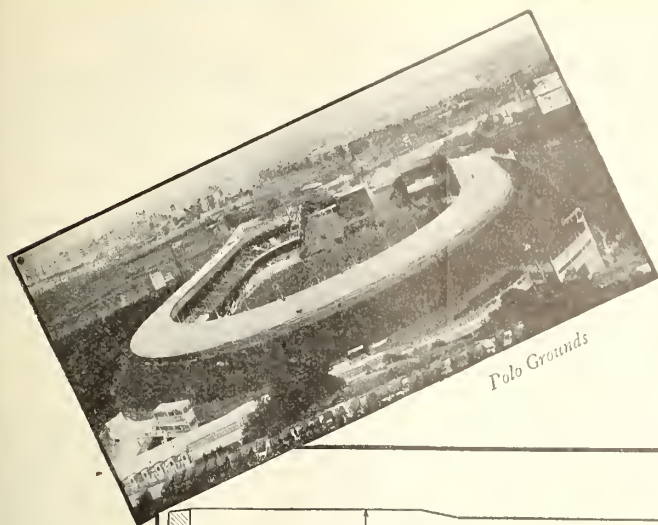
Fittings, Limited, Oshawa.

KEROSENE WATER HEATERS

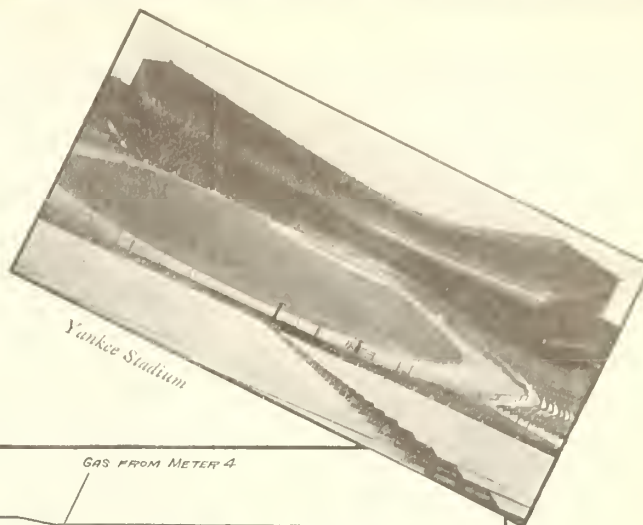
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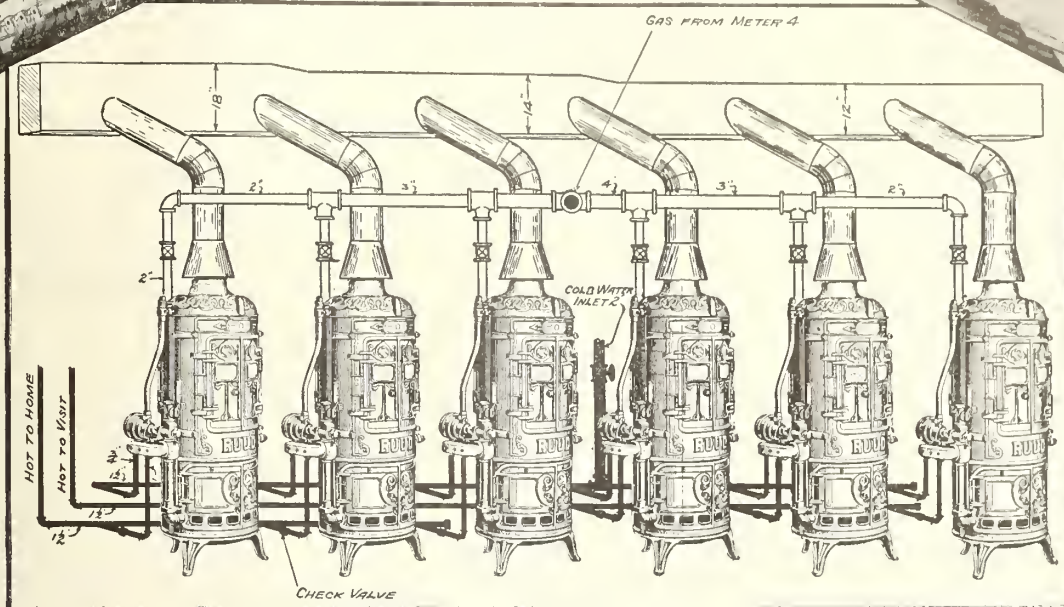
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W. H. Cunningham & Hill, Ltd., Toronto.
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Fittings, Limited, Oshawa.
Forwell Foundry Co., Kitchener, Ont.
Katie Foundry Co., Galt, Ont.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
Standard Sanitary Mfg. Co., Ltd., Toronto, Hamilton.
Toronto Hardware Mfg., Co., Toronto.
Warden King, Ltd., Montreal.

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Crane, Limited, Montreal, Que.
A. B. Jardine & Co., Hespeler.
W. H. Cunningham & Hill, Ltd., Toronto.
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Because:

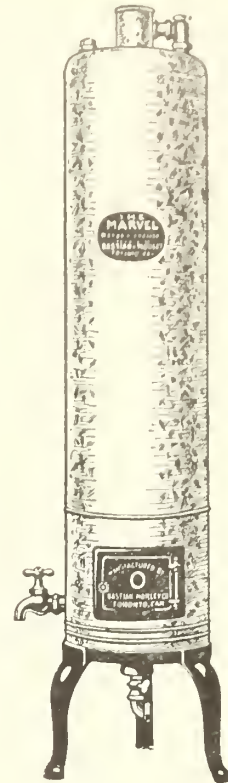
The Marvel has actually more appeals to a customer's thrift, his desire for cheap operation and the comfort-loving side of his nature than any other heater.

The Marvel is different; it is a tank and heater combined; it is compact; it will deliver a gallon of hot water per minute; it won't get out of order—it can be had in any size.

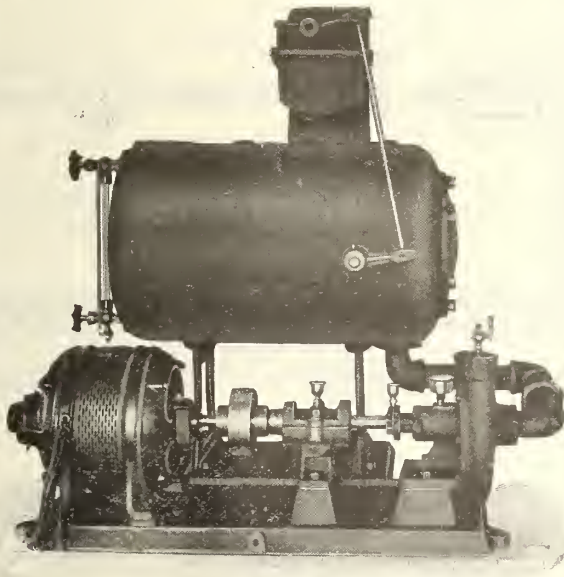
Marvel heaters leave with the dealer a very generous profit.

Sold only by or through plumbers.
Write for all particulars.

BASTIAN-MORLEY, LIMITED
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What About Those Rush Jobs?



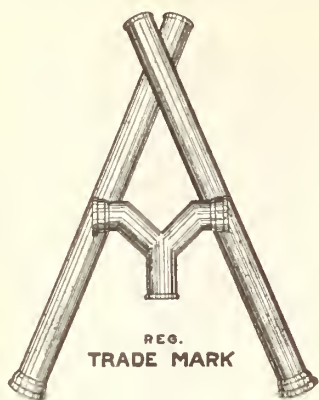
W-155

Now that the autumn has set in, there will be some heating jobs that are being rushed.

Smart-Turner Power-driven Automatic Feed Pumps and Receivers are giving so much satisfaction that they should be included in these same rush jobs.

Our representatives and engineering department will assist you in getting the best results.

The Smart-Turner Machine Co. Ltd.
Hamilton - Canada



USE

TESTED Soil Pipe

IT COSTS NO MORE AND YOU KNOW THE JOB IS RIGHT

Manufactured by

FORWELL FOUNDRY, LTD.

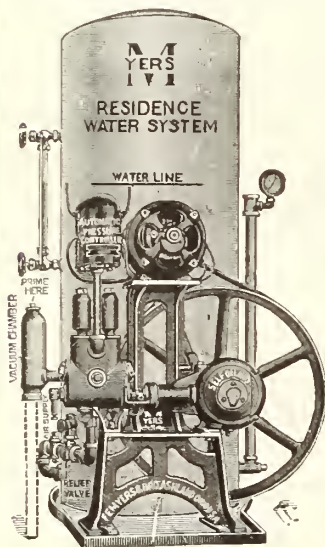
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PNEUMATIC WATER SUPPLY SYSTEM

Gives country residents all the advantages of a city water system without the excessive cost

The wide-awake dealer will make big profits out of this system among customers who now have difficulty with their water supply. It is so simple to operate and costs practically nothing for upkeep.

The outfit consists of an air-tight steel tank which can be placed in the basement, and a "Myers" famous guaranteed pump (hand or power), suitable for pumping air or water, together with pipes and fittings.



Any plumber or gas fitter can easily install it. Every outfit guaranteed to do the work for which it is designed. For small or large dwellings.

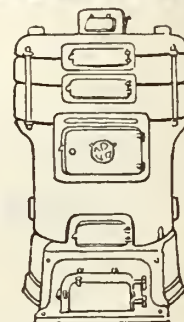
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Tweed, Ont., Canada

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A Grave Fact

It has the same 3 times back and forth fire travel, and between section flues as the regular Burnham sectional. It's long on fire travel, short on coal bills.

It's a wise man who digs his own grave in which to bury his troubles.

The Burnham Round Sectional boiler is a grave digger. It digs right in and buries your heating troubles.

It's sectional in construction, and a whale in the work it does.

Sections can slip through the usual door opening.

Send for circular.

Lord & Burnham Co. Limited

(Boiler Department)

Harbor Commission
Building,
Toronto, Ont.



Factory:
St. Catharines, Ont.

Good publications furnish A.B.C. reports to their advertisers.

Sanitary Engineer is a member of the Audit Bureau
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RADIATOR HANGER

YOU'LL USE 'EM YET!



Style R

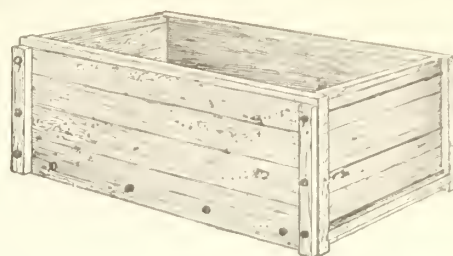
Radiators are completely installed before floors are laid. Does not require accurate placing of anchor bolts. The only hanger adjustable for both height and lateral positions. For ANY style radiator and ANY type of wall.

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Made in Canada

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The Fir used in the manufacture of TORONTO Tanks comes from British Columbia—only the finest quality procurable is sawn for our No. 1 Clear Tank grade stock—a tight grained wood, free from sap, shake, hearts and all knots, excepting a few fine pin knots.

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Atlantic, Toronto LIMITED
MONTREAL WINNIPEG CALGARY REGINA

Quality



Service

For a Satisfactory Completion Use a Floor and Ceiling Plate

A No. 10-A Narrow Flange Plate like the one illustrated is just the kind that will suit you. Steel Hinged Plate Flanges $\frac{3}{4}$ " wide.

These plates cover up all places marred by boring, etc.

Highly finished. Especially designed for twin connection "Narrow" Made in $\frac{1}{2}$ in. to 2 ins. inclusive. Has 1 in. flange made in all sizes from $\frac{1}{4}$ to 6 inches inclusive.



Gem No. 4, Automatic Air Valve. Made of the best brass obtainable. Equipped with high grade carbon. Guaranteed. Catalogue sent on request.

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HEALTHY, CONVENIENT, ECONOMICAL

Made of Reinforced Concrete. Can be shipped anywhere. Easy to install. Low in price. Both syphon and overflow type. No job too small. None too large. We have a type for both heavy and light soils.

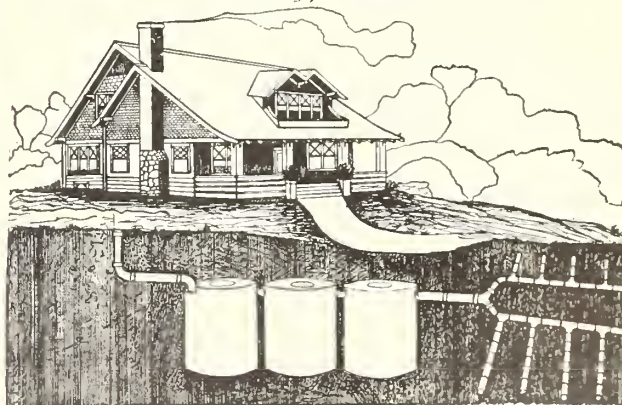
HOMES, SCHOOLS and SUMMER HOUSES.

Write for catalogue and dealers' price list.

Manufactured By

Christie Concrete Products Co.

Lindsay, Ontario



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WROUGHT PIPE



Suitable for the approaching period of building activity, road construction, etc. This is a line of great importance in making successful, profitable contracts. Our C. T. Brand of Wrought Pipe has been

THOROUGHLY INSPECTED by practical, experienced men. It is tested to 600 lbs. hydraulic pressure, and branded with our trade-mark. We carry this line of reliable pipe in sizes 1/8-in. to 4-in. Black or Galvanized. We also manufacture nipples and couplings, black and galvanized, in all sizes.

Ask your Jobber for C. T. Brand Wrought Pipe
Canadian Tube and Steel Products Co., Ltd.
 Operating Canadian Tube and Iron Co., Limited
 Works at Lachine Canal, Montreal

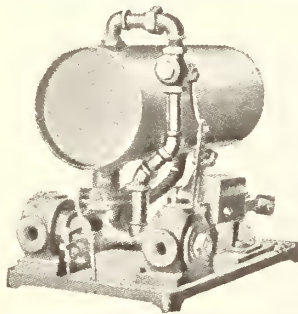
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The only machine of the kind designed for service on low pressure Steam Atmospheric and Vapor heating. The distinguishing features are a short sensitive leverage which assures the positive operation at all times. The Steam enters the top of the Tank with the Steam Valve high up, thus preventing flooding of the Steam line. The water ways are large, thereby accelerating the return of condensation and discharge of air.

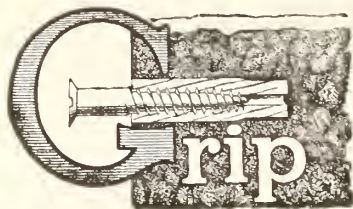
It is the simplest, most durable and dependable equipment that can be placed on any Steam Heating System.

Write us for information
Farrfhern Steam Service
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Tapped Closet Bend

Easier to attach
More permanent
Cost less



Secure Your Plumbing Fixtures This Way

"This Way" means the Rawlplug way, because it's **SAFE, SURE, ECONOMICAL** and **EASY!**

Every up-to-date plumber and builder knows Rawlplugs and uses them—because they assure better workmanship than other types of Screw anchors. Always a **SURE grip**—a permanent hold—in any material!

Rawlplugs are made of stiffened strands of jute fibre

which expand and become so imbedded that they actually become part of the surrounding material.

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How about letting us send you a few samples—free?

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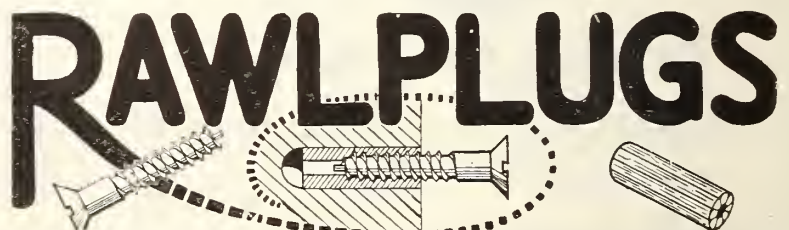
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THE RAWLPLUG CO. of CANADA

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FIX IT WITH



COUPON

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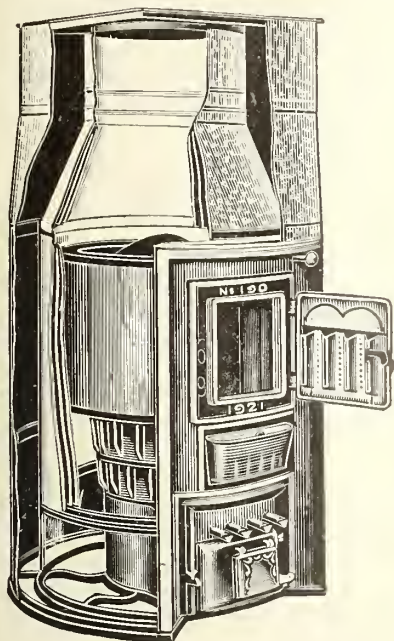
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Name

Address

The Banner Pipeless is Different

BECAUSE:—



The Banner Pipeless has two casings—the outer casing taking the place of the usual cold-air flue. The warm air rises directly to a larger register over the top of the furnace. This register is divided into two parts, the centre part serving as a warm air register. The outer part acts as a cold air register, drawing cold air down the flue which is formed by the outer casing of the furnace. The outer cold air flue keeps the outer casing always cool so that it is quite safe to keep vegetables and fruit near the furnace. A warm house and a cool cellar is the result.

We manufacture also the Banner Pipe Furnace and the Banner Pipeless Wood Furnace.

Write to-day for attractive agency proposition.

The Galt Stove & Furnace Co.
Limited
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For Steam and Hot Water Heating

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Kerr Valves on your Radiator is a stamp of quality on the job.

Ask your jobber for KERR valves. He likely has them in stock.

Kerr N. P. Union Elbows register with either the Hot Water or the Steam Valve, and are of same standard high quality.



No. 34



No. 33

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LIMITED

WALKERVILLE

Valve Manufacturers

ONTARIO

WANT ADS

If you want a buyer, clerk, salesman, traveler, position, you can reach the best men in the trade through these columns.

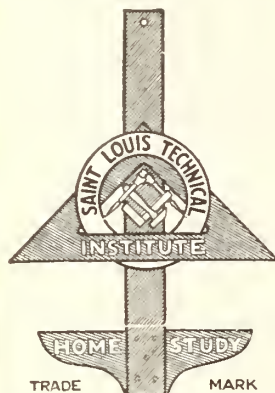
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Send me The Post for one year (52 issues).
I enclose \$5 (or you may draw on me).

NAME

ADDRESS

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Which One Instals GRIFFITH All-Metal Septic Tanks?

One of these sanitary engineers is a sterling craftsman and a good salesman, but he is continually out of luck on sewage disposal contracts.

He instals old fashioned septic tanks; delays caused by bricklayers and masons nearly always eat up his profits.

His smiling friend on the right sells the Griffith tank exclusively. He makes but one trip to the job; connects up at once and goes on his way to more sales and more profits.

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Dayton Pumps

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Manufacturers and Sanitary Engineers

165 King St. East, - Toronto, Ont.



Absolutely Dependable

No Donnelly Relief Valve has ever failed in service and it's quite unlikely that one ever will. It is so simply constructed there is nothing to get out of order and every one is thoroughly tested before you get it.

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TEN HIGH STREET
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Union Pipe Couplings

are practically indestructible because they are made of Heavy Malleable Castings, and the joint being Bronze against Bronze, gives the strongest kind of guarantee that the Dart will stay as tight as it is first made when screwed to a pipe line.

The Dart's reputation is based on the opinion of others; ask anyone who has had experience with Dart Unions, regarding their efficiency.

ORDER FROM YOUR JOBBER. There's a variety of styles to fill all requirements.

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Beaver Brand Enamelware by its ability to meet the highest demands for service under all conditions, has established itself in the confidence of the public to such an extent that each month witnesses an ever-increasing demand for products of Beaver manufacture.

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One Twist—it's closed Zip! Another—full open

We're not going to take time here to give you the full specifications of this newer, better radiator valve. Take our word for it—it's made right.

Tell your customers the story printed above: Zip! One twist—it's closed. Zip! Another—full open. That's all. It sells every time, and customers stay sold. Dome top will not catch dust either.

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Galt - Ontario

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Sanitary Engineer

Plumber and Steamfitter of Canada

Vol. XVII

PUBLICATION OFFICE: TORONTO, NOVEMBER 1, 1923

No. 21

Our New Style Emco No. 881 Disc Radiator Steam Valve Has Met With Instant Response



No. 881

This valve has only recently been placed upon the market yet sale has eclipsed even our expectations.

Our No. 881 is equipped with baked enamel mushroom type wood wheels, has a composition disc which may be renewed easily and may be repacked with the valve open.

The No. 881 has not only been made with the idea in mind to perfect a valve which will give constant and dependable service but to make as handsome a product as can be produced.

All Emco products are tested under pressure before leaving the factory and under a much greater pressure than that to which the product will be subjected.

Emco valves save you time and worry on your installations. Of course they carry the Emco guarantee. See your jobber or write us.

Empire Brass Manufacturing Co., Limited

LONDON and TORONTO, CANADA



TO-DAY WE ALL WORSHIP "GIMMIE"

"GIMMIE"

I'm GIMMIE of the outstretched hand,
My password's known in every land;
With me around you're bound to miss
The GIMMIE that and GIMMIE this;
So keep me near you night and day,
Let GIMMIE bring good luck your way.

GIMMIE—Pleasure—Wealth—Health
Everything for Ease—Luxury—Comfort
is seized with outstretched hand—

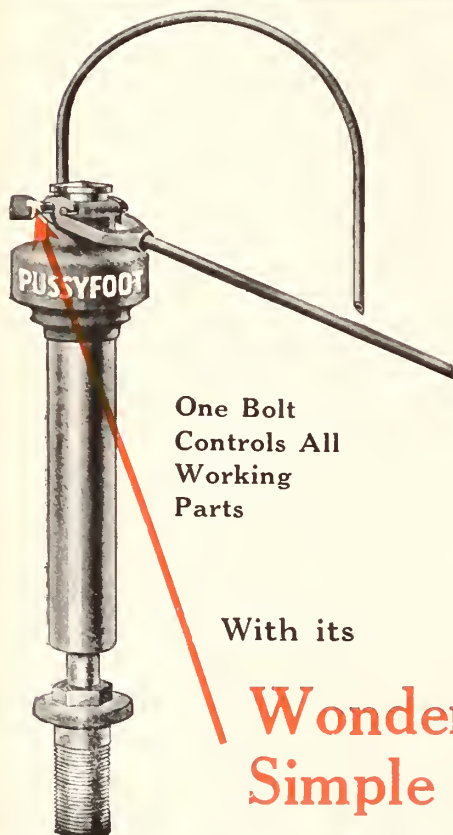
Mr. Plumber—

All these GIFTS will be yours in full
measure if you say to your JOBBER—

GIMMIE "Pussyfoot"

and insist on having

Pussyfoot



One Bolt
Controls All
Working
Parts

With its

**Wonderful, Patent, Silent,
Simple Valve.**



THE CANADA METAL COMPANY
LIMITED
TORONTO

MONTREAL
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Nothing is more embarrassing in the home, and particularly with guests, than a noisy flushing closet. Even in the installation of a very modest toilet-room, the added refinement of a quiet closet is appreciated. And the desire is so easily gratified by furnishing the Quietus-Bellemeade combination illustrated. The moderate cost of this outfit should make it practicable for almost every household. The labor cost of installation is no greater than for a less desirable fixture.

The superiority of this closet combination exists in its being of syphon jet type, extremely quiet in operation, and possessing outstanding sanitary characteristics. Both closet and tank are made of SOLID VITREOUS ware, hard-burned, all-clay, vitreous through and through, proof against the absorption of dangerous acids, and with a clear white deep glaze surface, possessing no affinity for dirt or germs, as smooth and as easily kept clean as a china plate.

CANADIAN POTTERIES
LIMITED

SAINT JOHN'S
QUEBEC

Sales handled exclusively through recognized jobbers in plumbing supplies

"Standard"
PLUMBING FIXTURES

Standard Sanitary Mfg. Co., LIMITED, TORONTO

A Bathroom for Every Two Bedrooms

Here is a suggestion which, put forward properly, will bear fruit in creating more business for you. A Bathroom for every Two Bedrooms.

It's a great idea, and a very worthy idea. It means far greater comfort for the house owner, and incidentally double the business and profit for you. And—remember to specify "Standard" Plumbing Fixtures!

Advertising for "Standard" bathroom and kitchen plumbing fixtures is being broadcast in a very effective advertising campaign running in leading Canadian newspapers and magazines.

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Limited

General Office and Factory : Royce and Lansdowne Avenues, Toronto, Ont.

Toronto Store:
55-59 Richmond Street East

Winnipeg Showrooms:
145 Market Street, East.

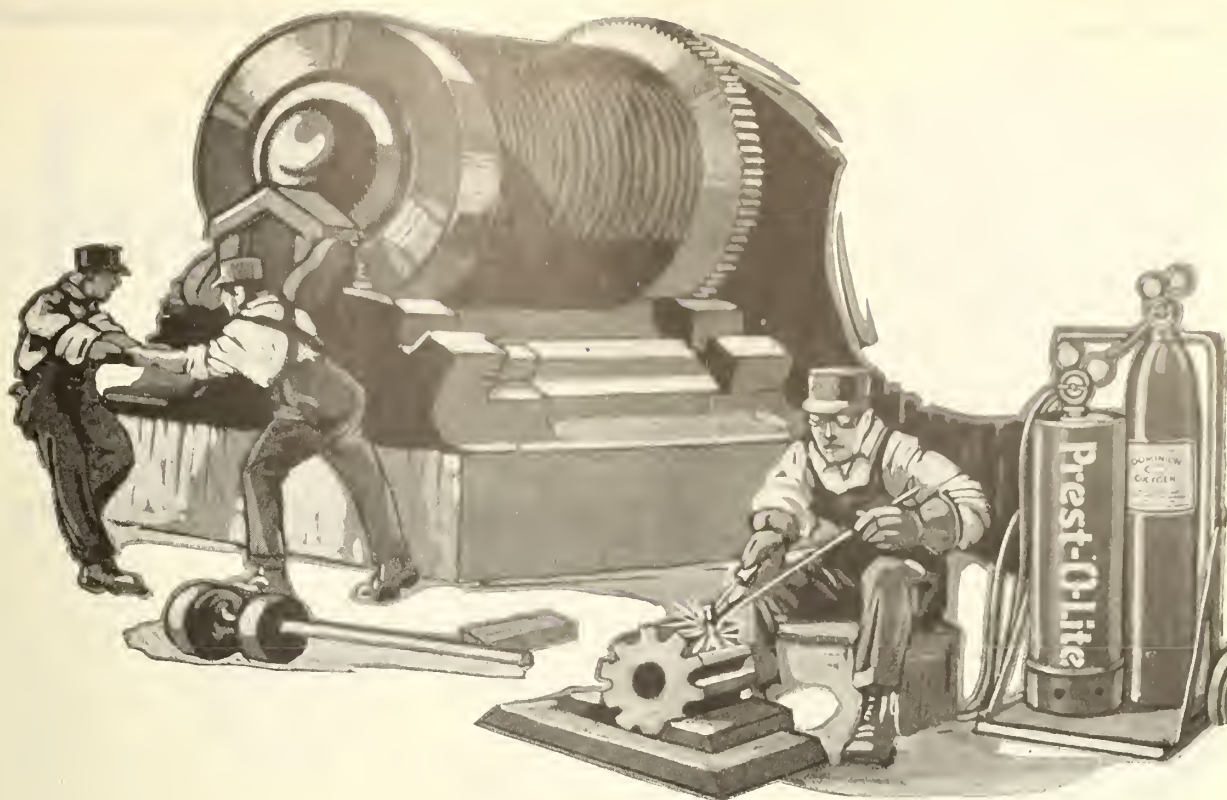
Hamilton Store:
20-28 Jackson Street West.

Montreal:
705 McGill Building.

Calgary:
354 Eleventh Ave. West.

Vancouver:
860 Cambie Street.

"Made in Canada"



When Time is a Vital Factor

A BROKEN COG in a gear or a crack in the fly-wheel may tie up your plant. Breaks in machinery cause costly delays. Oxy-Acetylene welding and cutting is saving thousands of dollars yearly in effecting quick repairs.

That is when Dominion Service proves up. The purity of Dominion Oxygen and Prest-O-Lite Acetylene, assures the hottest flame and the utmost economy in fuel. The easily-handled cylinders permit the placing of the welding and cutting equipment within working distance of the job, which alone saves valuable time.

Dominion Service is equally good for the small welding and cutting shop, manufacturing plants, and big shipyards or railroads. If you use welding and cutting in your business, or contemplate the use of the oxy-acetylene process, either in production or for general repair work, it will pay you to know about Dominion Service.

Our representative will welcome the opportunity of telling you how Dominion Service will benefit your business.

Dominion
OXYGEN

*Operating the Welding and
Cutting Gas Division of*

*Prest-O-Lite Company of
Canada, Limited.*

DOMINION OXYGEN COMPANY LIMITED.

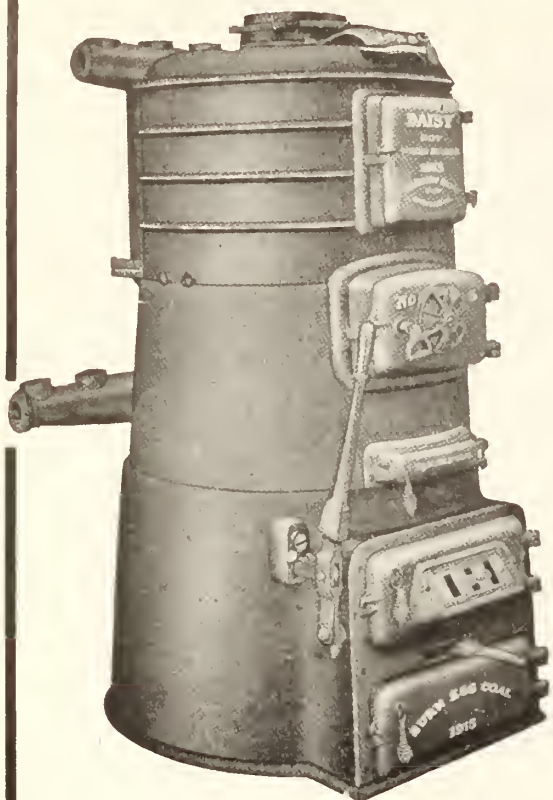
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DISSOLVED ACETYLENE

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Distribution Points: Hamilton, Merriton,
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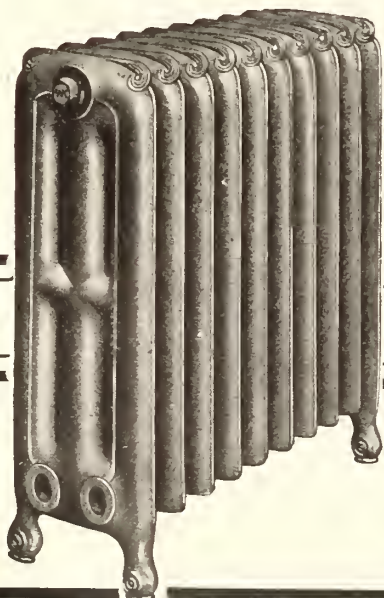
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Scattered over the Dominion are more than 60,000 thoroughly satisfied users of Warden King Boilers and Radiators. Modest bungalows and palatial residences alike share in Warden King fuel economy.

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Four Reasons Why You Should Sell Daisy Heaters.

- | | |
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| 1. Can be recommended as a fuel saver. | 3. Customers thoroughly satisfied. |
| 2. Heating capacity guaranteed. | 4. Nets you big profits. |



Warden King

LIMITED

Montreal, Quebec

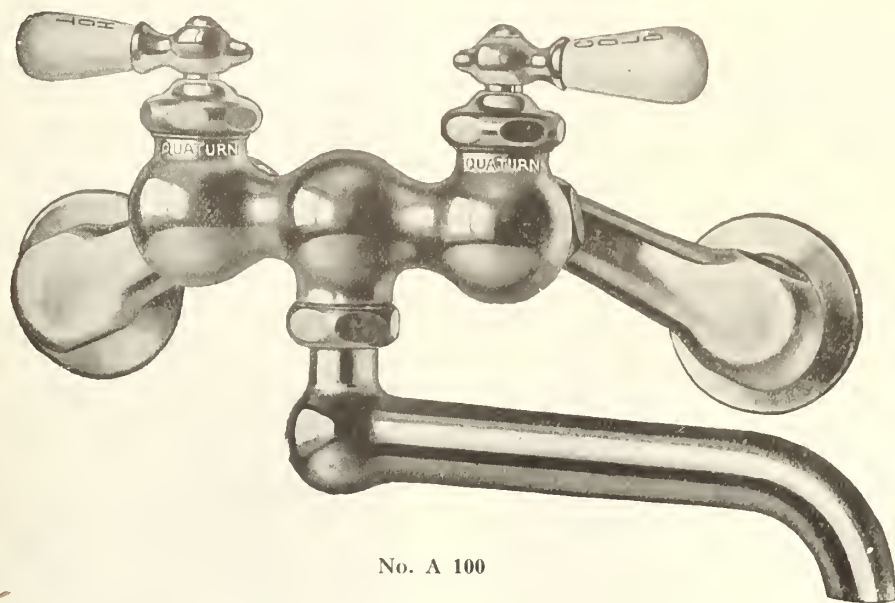
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*Write Today for the Dealer
proposition.*

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A Novelty in Gifts



No. A 100

CLASSIC QUATURN MIXING FAUCET with **swinging spout** for Kitchen and Pantry Sinks, nickel-plated with China Handles. Connections for $\frac{1}{2}$ in. I. P.

MEASUREMENTS

Adjustment of Inlet Connections centre to centre:

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4 in. to $10\frac{3}{8}$ in. on 10 in. fixture.

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The Classic fits any sink and extends into the sink only $3\frac{3}{8}$ in. The spout has a radius of 6 in. and **can be pushed back out of the way when not in use.**

Every Plumber should have one of these **handy Classic Faucets** in his window in advance of the holiday season. **A sink ornament** and most practical fixture.

It appeals on sight to all progressive housekeepers—a display means sales, an instalment means sales—the neighbors see it—the neighbors want it.

Ask your Jobber or **get in touch with our nearest Sales Office.**

THE

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WALLACEBURG, ONT.

LIMITED

TORONTO OFFICE:

Mr. L. N. Vanstone, 10 Wellington St., E.
Telephone: Main 2355

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G. M. Price, 10 Victoria St.
Telephone: Uptown 8617

WINNIPEG:

Moncrieff & Endress, Ltd., 80 Lombard St.
Telephone: A 9135

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Long and satisfying service from sanitation and heating installations is a factor in developing a reputation which will pay added profits by attracting new business while holding your present trade. Crane valves, fittings and fixtures give this service because they are designed and produced in accordance with the highest engineering standards.

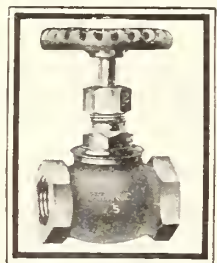
Lower installation costs follow the specification of Crane equipment. All parts are manufactured with the greatest precision—nipples are chamfered to make the threads start more readily and all fittings are machined to insure tight joints at the first assembly. The wide variety afforded in Crane bathtubs, lavatories, closets, kitchen sinks and laundry fixtures assures pleased customers.



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*Branches and Sales Offices in 21 Cities in Canada and British Isles
Works: Montreal, Canada, and Ipswich, England*



Crane Low Pressure Globe Valve No. 1B



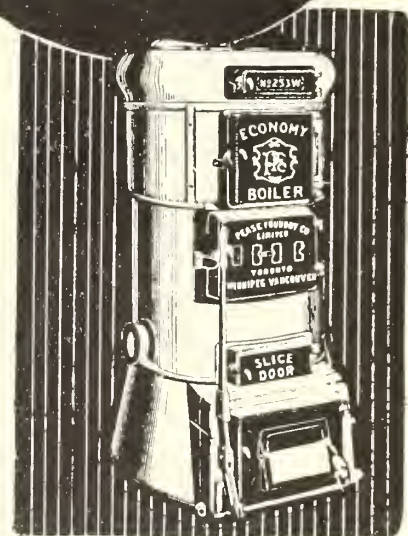
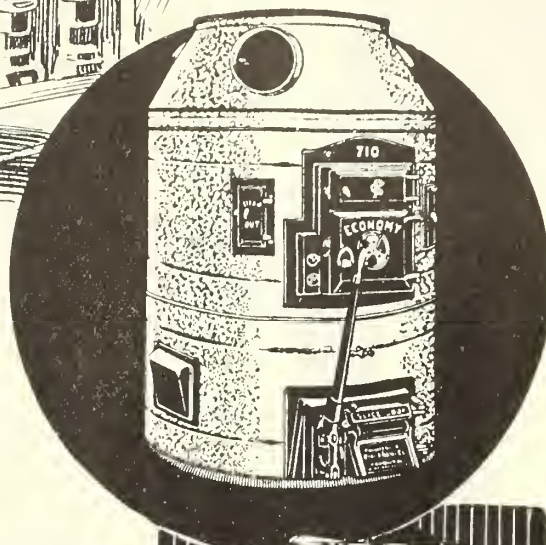
Pease Increase Facilities For Serving The Trade

To enable us to carry greater stocks, to provide larger display rooms and to serve you in a superior manner, is the reason why we have doubled the size of our building on King Street East in Toronto.

We can now truthfully claim to have the largest display of heating goods in Canada and cordially invite you to bring your customers to our showrooms, so that they may become better acquainted with the Economy Boilers, Arco Boilers, Mogul Boilers, Ideal Boilers, Safford Boilers, Bungalow Heaters, Economy, Peerless, Saxon and Regina Radiators in addition to our line of Economy Brampton and Reliable Warm Air Furnaces.

Space for pipe, fittings, valves, etc., has been more than doubled and increased delivery arrangements will enable us to serve you promptly.

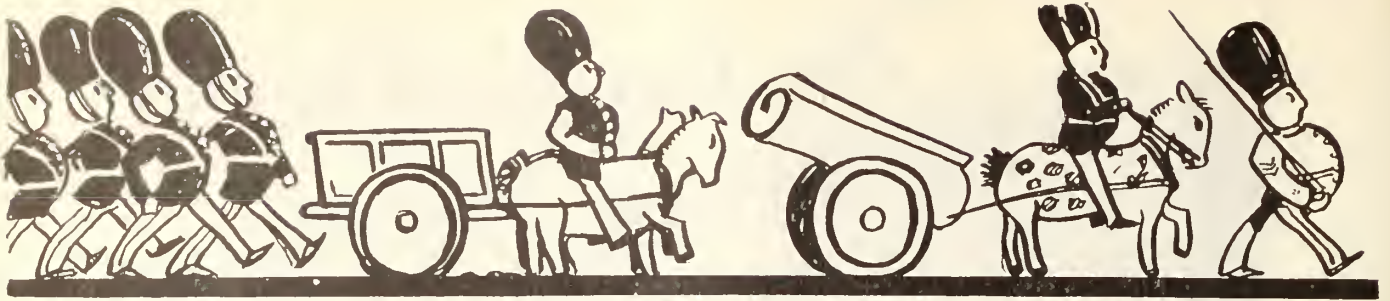
Mr. Jeff Hunter, our Engineer, will also gladly give your heating problems his careful attention.



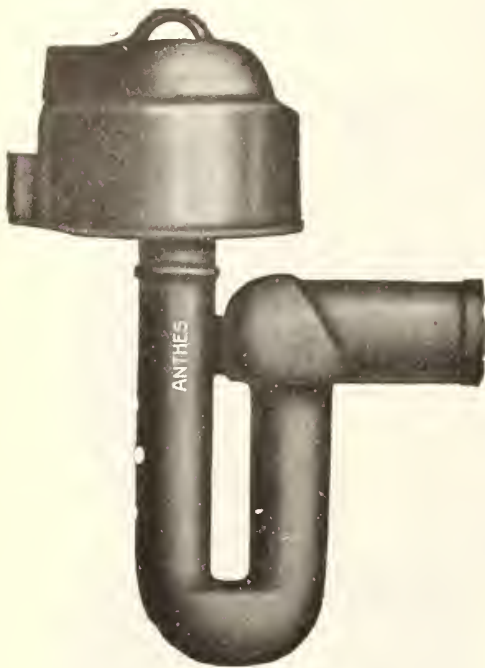
PEASE FOUNDRY COMPANY,

LIMITED

118 & 120 King Street East
Toronto Ontario



The Great Fall Drive



The Anthes Syphon
"The Heart of the Sewage Disposal System"

As a skilful general makes profitable use of every minute of favorable weather—so are all wide-awake Sanitary Engineers taking advantage of these glorious autumn days.

The great fall drive for rural sanitation business is now in full swing right across the country.

Everywhere sanitary engineers are pressing forward to new sales successes in these last weeks of active campaigning.

Aggressive selling, and the threat of compelling him to spend another winter wide open to the flank attacks of Jack Frost, is causing many a "tough" prospect to surrender unconditionally and to accept the Sanitary Engineer's proposals for the installation of complete sanitary equipment.

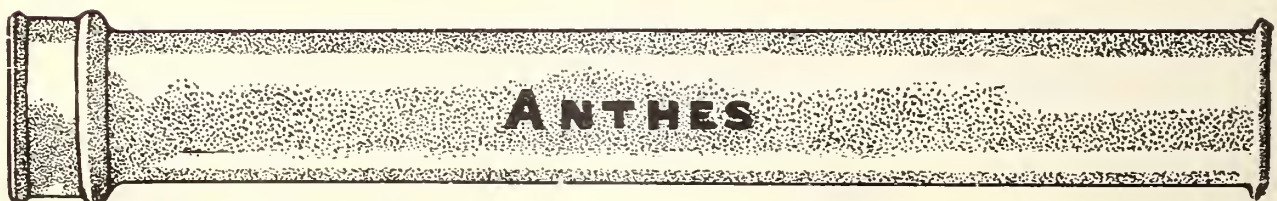
Join this conquering army. Get your share of the spoils.

Anthes Foundry

LIMITED

Toronto and Winnipeg

Manufacturers of Cast Iron Soil Pipe and Fittings



SANITARY ENGINEER

PLUMBER AND STEAMFITTER OF CANADA

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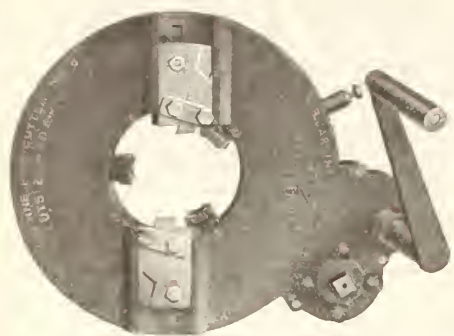
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Cuts 2½" to 6" pipe.

All Pipe Fitters realize the necessity of a real Pipe Cutter.

Here It Is

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Feed is automatic and positive, instantly applied or released.

Quick return of cutters after cutting off pipe.

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(Made in three sizes)



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Shanks Vitreous China Lavatories as illustrated above and as shown in list No. 374, have been specially designed for Canadian requirements. Made in Wall-hanging, Pedestal and Leg Types—Vitreous through and through.

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Established
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Circulates
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Canada

Sanitary Engineer

Plumber and Steamfitter of Canada

Published
First
and
Fifteenth
of Month

Vol. XVII

TORONTO, NOVEMBER 1, 1923

No. 21

Says 90% of Sales of Plumbing Equipment Are Influenced by Housewives

Starting With Small Capital, T. Winters, Kitchener, Ont., Has Developed Prosperous Business on Foundation of Fundamental Business Principles—Keeping the Goods Out Where They Can be Seen and Help Sell Themselves

“ONE of the very finest shops we have seen anywhere,” is what men in the trade and travellers, both American and Canadian, say of the business premises of T. Winters, at Kitchener, Ont.

Starting with capital that was anything but large, but with high ideals of service and selling, Mr. Winters has built up a most prosperous business, and one that is known not only in Kitchener, but for miles around.

It was some time before he accumulated the capital necessary to equip a shop such as he wanted, but right from the start he made it a point of always keeping what stock he had in spotless condition, and ready for inspection by any prospective buyer, man or woman.

An Important Point

One of the most essential points in selling he believes is to keep the merchandise which is offered looking its best. Unfortunately he points out this is not always realized by men in the trade. It is equally important also from a selling

point, he says, to combine as effectively as possible various lines of merchandise which naturally group themselves together in everyday use.

In his store and window displays, for instance, Mr. Winters is careful to keep bath room equipment separate from kitchen equipment and furnaces and heating apparatus separate from either. Similarly he keeps bath room fixtures in a place by themselves.

Displays Essential

Mr. Winters holds the view that no sanitary engineer can possibly make a mistake in keeping too much merchandise out where his prospective customers can see it. Many of the men in the trade, he believes, could treble and quadruple their business if they would only keep their goods out where they can be seen and keep them in such shape that men and women who are building houses can come in and talk about what they want to buy.



Interior of the well-lighted and attractively arranged plumbing showroom of T. Winters, Kitchener, Ont. The arrangement of the equipment, classifying bathroom, kitchen and laundry equipment separately, is described in the article. This showroom brings much business.



A corner of the plumbing and heating showroom of T. Winters, Kitchener, Ont., showing hot water equipment, laundry tubs, kitchen sinks, etc. Note the attractive board with black background showing up the white fixtures prominently. Such a showing is a fitting background for the window display and it is used for this purpose.

One of the most successful features of the large turnover in his own business, he says, has been the real service he has been able to render home owners and the community in general, by suggestions as to how they can improve their homes. A very large percentage of the people in any city or district, he says, are constantly interested in home improvements, and especially in various lines of plumbing goods. By keeping constantly before the people of Kitchener and vicinity, ideas for attractive bath rooms, for modern kitchens, for better heating, etc., Mr. Winters has been able not only to build up a large and steadily growing trade for himself, but he has the very real satisfaction of knowing that by what he calls "real service," he has helped in making hundreds of homes better, healthier and more convenient. This applies almost equally to homes in the rural districts, as well as in the city.

Are Keenly Interested

Farmers, he finds, are keenly interested in suggestions that will make their homes better and more comfortable. Suggestions such as are shown in the accompanying illustrations are constantly "pulling" splendid business for Mr. Winters. One day it is an inquiry for a water pressure system. Another time it is a query about a bath room outfit or a heating system. The best part of it all is, Mr. Winters says, that his window and store displays never lose their "pep."

The reason for this undoubtedly lies in the fact that he constantly keeps a large assortment of plumbing goods constantly before his prospective clients.

At nights his windows are splendidly lighted and day in and day out, week in and week out all through the year, Mr. Winters gets business that is directly traceable to his displays.

From Long Distances

In these days when automobiles have cut distances down so that 50 and 60 miles mean nothing, he finds that his windows are frequently inspected by home owners who reside a long way from Kitchener. Many of these inspections result in queries by mail or by personal call, and when followed up, result in profitable installations.

One of the most profitable angles to his displays, he says, is in the business they bring in direct from home owners in the city. Few cities in the Dominion have such a large percentage of comfortable, well built, well equipped, modern homes, at Kitchener. The people are well to do and thrifty. They have the means to instal modern plumbing equipment and they do it. This tendency, of course, offers a wide opportunity for business that Mr. Winter takes full advantage of and his very best way of coralling such trade, he says, is his store and window displays.

Watch the Women

Time after time he has had a man or woman come in to ask about equipment on display. Very often it is the woman who comes in. Incidentally Mr. Winter points out it is the housewife who is instrumental in taking the initiative in sanitary improvements in about 90 cases out of 100. Every woman, he believes, wants a nice home and is keenly interested in having in it

equipment that will make for better living conditions or more comfort. At any rate he finds that it is very often the woman who comes in to discuss with him installations either for a new home or for improvements in an existing home. This is usually an investigation trip on the woman's part. She wants to get information both as to what is the best equipment and how much it is going to cost. Having obtained these facts, she figures out what she wants and then brings hubby down to assist in making the selection.

Has Been Profitable

Just how profitable it has been for him to keep his premises so that any woman can come in and inspect goods without fear of mussing up her dress, Mr. Winters is unable to say, but he figures that it runs into large figures. No woman, especially clean, thrifty housekeepers, he says, want to go into a place of business where ill kept, dusty, dirty merchandise is kept. The sooner men in the trade realize this the sooner he believes they are going to get busy and clean up and cash in on some real profits that are waiting for the picking.

On the other hand he finds that women, and their husbands, too, for that matter, who have come to him for information and suggestions, and have made installations, never tire of sending their friends or of talking about the shop and its service.

A Splendid Advertisement

"It is the old story," said Mr. Winters, "there is no better advertisement than a satisfied customer. It

doesn't make any difference whether the party lives in the country or the city. If they come in and get the information they want and then improve their homes by putting in a bath, or a heating system or some other equipment, they never stop talking about it. I have got a very appreciable amount of good business through satisfied customers and it is constantly coming in."

"Sanitary" means something very real in the policy of Mr. Winters. As will be seen from the accompanying illustrations, he aims to live up to his ideals of the profession in every way. The interior of his shop is painted white and is kept in perfect condition. The furnaces on display are kept in A1 condition, being painted regularly and dusted carefully. Every bit of enamelware and every piece of nicked goods is looking its best and ready at any time for inspection by the most fastidious home owner.

Another thing that helps sales, says Mr. Winters, is the keeping of as wide a range as possible of style of merchandise. Some home owners, he points out, can afford pedestal basins. Others can only afford the ordinary kind. Some people can buy one kind of fixtures. Others want a less costly variety. All, however, he finds are very keenly interested in seeing exactly how the fixtures or equipment will look when installed and it is a very real help in closing sales to be able to take them over to a display and let them see it just as it will look in their home.

"People greatly appreciate the ideas they get from my shop displays," says Mr. Winters. "Very frequently I find

that their own ideas regarding arrangement are somewhat vague. When I can take them over and show them exactly how a set of laundry tubs or a bath room outfit will look it usually cinches the sale. More than this, it gives them a very favorable impression of the firm. They seem to argue involuntarily, 'Here is a man who knows from experience what he is talking about and his ideas are valuable.' They listen more readily to suggestion, and it is easier to close up business."

As will be seen from the photos, Mr. Winters keeps special displays of bath-

room fixtures in conspicuous places. He finds it very profitable to do so. There are any number of homes in which there are possibilities for selling fixtures. Some people buy them in whole sets. Some people buy one fixture at a time. Some people buy them for gifts. There is, however, Mr. Winters says, a constant call for them and in accordance with his general shop policy he keeps his bath room fixtures displayed so that he is not only not ashamed to have anyone look at them, but so that they usually "sell" themselves.

Functions of Various Trading Branches

Wholesalers, Manufacturers, and Retailers Outline Scope in Distributing Necessities of Life With Aid of New Commerce Bureau

RECENTLY representatives of the manufacturing and distributing industries of the necessities of life were called together under the newly-created Domestic Commerce Division of the Department of Commerce for a study of the complex production and distribution problems growing out of present-day conditions.

The bureau has described briefly but accurately various functions as social factors.

The wholesalers, after careful thought, offered the following definition:

"It is the wholesaler's function to carry a well-selected stock of merchandise; to buy suitable quantities, to ware-

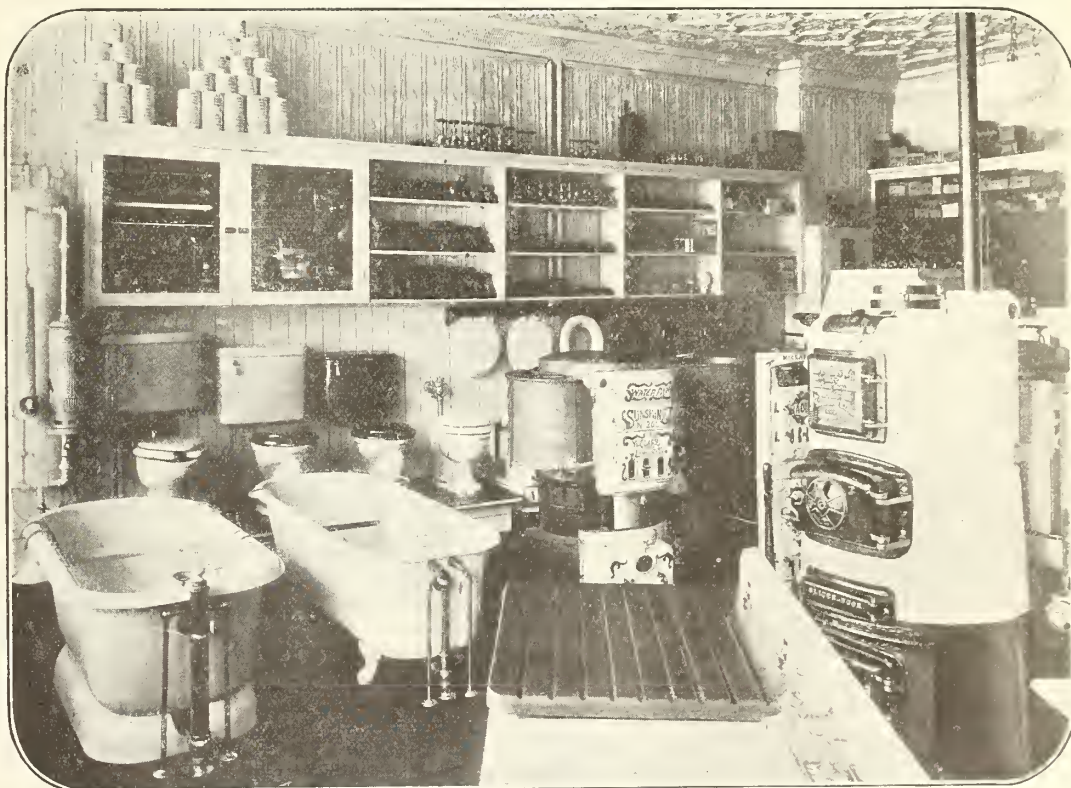
house a reserve stock for retailers, within a radius of economic distribution and convenience of service, and to resell in proper units to retailers."

The manufacturers, with the same care, phrased the definition of their contribution in the following terms:

"It is the function of the manufacturers to supply commodities economically produced to best meet the requirements, needs and tastes of the public, utilizing the experience, methods and equipment at command, to serve these ends."

The retailers accepted the definition of the retailers' function, as outlined in (Continued on page 17)

Bathroom requirements, with small appliances attached are shown prominently in this display which also shows hot water furnaces. Note the use of wall cabinets and orderly arrangement of towel bars, valves, etc. On the left, in full view from the street, a range boiler is shown with connections for both electricity and gas.



Sales Tax Included in Price Quoted, Say New Tax Regulations

Some Technicalities in Connection with Proposed Tax Regulations Cleared up by Issuance to Collectors of Definite Regulations—Unlicensed Jobber Selling to Licensed Party Cleared by Stating on Invoice That Price Does Not Include Sales Tax—Returned Goods

IN THE time which has elapsed since the draft regulations of the new Sales Tax were prepared and sent out to manufacturing and other interests in Canada, an opportunity has been given for representations to be made by various branches of trade, and as a result of such representations the regulations have now been put in more definite shape and sent out to officers of the Department of Customs. The notices now issued contain the final form of the regulations adopted by the department after studying the comments received on the draft proposals.

One of the most important provisions is the following: "Licensed manufacturers and licensed wholesalers, when selling to retailers or consumers, shall not show the tax as a separate item on the invoice. The provisions of paragraph (b) Subsection 12, Section 19, BBB, will be deemed to have been complied with if, when the unlicensed wholesaler sells to the licensed manufacturer or licensed wholesaler, he states on his invoice that the price of the goods does not include sales tax."

As Sanitary Engineer secured a copy of the new regulations just before going to press, only a brief review of them can be made herewith:

Quote License Number

Annual fee for a license is \$2. payable on April 1 of each year.

Every licensed manufacturer or licensed wholesaler when purchasing or importing goods for further manufacture or for resale shall quote his license number and certify on the order or entry that such goods are for resale.

Licensees shall not quote license number nor give a certificate as above when purchasing or importing plant equipment, articles or goods for their own use and not for resale.

Licensed manufacturers shall not quote their license number when purchasing or importing goods to be used in, wrought into or attached to articles specified as exempt from sales tax.

The provisions governing monthly returns are about the same as formerly, provision being made on such returns for separating amounts of non-taxable sales and taxable sales.

When the portion of goods exempt from tax exceeds one-third of the value of all of the materials used in the manu-

facture or production of goods as referred to in Subsection 3 of Section 19-BBB the manufacturer shall take out a license and pay sales tax on his sales.

The section dealing with refunds and deductions is as follows: "Licensed manufacturers or wholesalers who desire to make application for deduction of sales tax paid on materials on hand on Jan. 1, 1924, in respect of goods which have been or are to be used in, wrought into or attached to articles to be manufactured, which articles are subject to sales tax, shall signify their intention of doing so in writing to the Collector of Customs before Dec. 1 next and make an inventory of the goods upon which claim is to be filed.

"Such inventory shall show a description of the goods and trade number, if any, and the quantity and value of each kind of goods, such value being the value upon which tax was actually paid. Each item shall be serially numbered. Goods in transit on Jan. 1 upon which tax was paid or payable shall be regarded as goods on hand.

"Goods in the hands of licensed manufacturers, producers or licensed whole-

salers on Jan. 1 for resale in the condition in which imported or purchased by them are to be included in the inventory of such licensed manufacturer, producer or wholesaler. When the goods are sold the invoices therefor shall be marked with a notation that the tax was paid prior to Jan. 1 and the Collector of Customs shall be notified and the inventory claim reduced accordingly. Claims for total amount of deduction, together with complete evidence, must be submitted before June 30, 1924. Licensed manufacturers may make deductions on their tax returns for the tax paid before Jan. 1, 1924, on materials used in the manufacture of goods up to the close of the period covered by that return."

Conducting Retail Branch

Licensed manufacturers or wholesalers who also conduct a retail branch shall keep separate records for each of such branches and not use their license in connection with importations or purchases for the retail branch.

In respect of goods subject to sales tax sold by retail by the manufacturer in Canada, the value of the goods for purpose of tax will be determined by the Minister of Customs in each class of cases. In respect of goods subject to sales tax sold or transferred by the manufacturer or producer thereof in Canada to his own wholesale houses, the value for purposes of the tax shall not be less than the wholesale price.

Licensed manufacturers and wholesalers dealing in goods shipped in returnable packages may make to the government not later than the end of March each year an annual consumption or sales tax return as to such packages instead of monthly returns, and the tax so payable shall be paid on the difference between the amount charged for returnable containers shipped during the year and the equivalent amount rebated for containers returned during that period.

Concerning returned goods, provision is made that where goods are returned as unsatisfactory or damaged in transit and goods of the same value are supplied in exchange, no charge being made for goods so supplied, no tax is applicable on goods supplied. If the goods supplied are of greater value, sales tax is collectible on difference in value. If of

(Continued on page 18)

SALIENT POINTS OF THE NEW REGULATIONS

Tax not to be shown as a separate item on the invoice.

Unlicensed wholesaler selling to licensed parties can state on invoice "price does not include sales tax."

Goods on hand January 1 to be included in inventory. When subsequently sold invoices are to be marked with notation that tax was paid prior to January 1.

Goods transferred by manufacturer to own wholesale department shall be valued for taxation at not less than wholesale price.

Provision made for refund of tax on returned and damaged goods.

Certain oils exempt from tax when used for ship's stores.

No tax payable on repairs except in respect of material supplied.

Custom work done for licensed parties not subject to tax.

Sales tax not to apply on charge for freight involved in price of article as appearing on invoice.

Is There Such a Thing as Legitimate Stealing in Plumbing Business?

How Many Plumbers Know Overhead or Cost of Doing Business and Their Volume of Business? How Many Pay Themselves a Salary, Limit Expenses, Charge Themselves for Goods Taken From the Business, etc.?

Written for Sanitary Engineer by C. D. HENDERSON, President Henderson Business Service, Ltd., Brantford, Ont.

ORDINARILY to call a man a thief would be to flirt with the undertaker but when no names are mentioned and one can enjoy the protection of the press it's worth chancing especially when it is done with a worthy object in view.

Some time ago I attended a meeting of sanitary engineers and during a discussion of business subjects we asked a few questions. The answers proved conclusively the suspicions I have had for some time that the average merchant cheats himself, cheats his business and his family, in fact, in plain English he is a thief.

Now wait a minute before you call me a liar or any other pet names. Read the following questions which were asked at the meeting along with the answers—by the way there were about 100 sanitary engineers present.

Q.—How many in the room know exactly their overhead expense or cost of doing business and their volume of business?

A.—10.

Q.—How many men pay themselves a regular salary?

A.—16.

Q.—How many of you limit your expenses to your salary?

A.—None.

Q.—How many of you pay yourselves the salary to which you are entitled?

A.—None.

Q.—How many of you charge to yourselves goods which you take from your own business?

A.—8.

Q.—How many of you pay cash for what you take from your business?

A.—None.

Q.—How many of you run contra accounts with other merchants and when settlement is made charge the amounts of these contra accounts against yourselves?

A.—15.

Q.—How many present have relatives help them out in the office or store occasionally?

A.—53.

Q.—How many of these 53 pay these relatives for services rendered. I mean pay in actual cash?

A.—6.

WHY SO FEW ARE SUCCESSFUL

Now in view of these admissions is it any wonder that only about three per cent. of those engaged in the business make a success of it? Does it not coincide with the mercan-

tile agencies' contention that 73 per cent. of the failures are from personal causes (that is the fault of the man himself)?

All of us realize that in order to know where we are at and where we are going we should pay ourselves a salary for managing the business—we know that every article taken from the business for self or family should be charged against us and paid for—surely the laborer is worthy of his hire and every person who performs a service for the business whether they are relatives or not should be reimbursed, otherwise how in the name of common sense is it possible to determine whether the business is a paying proposition or a white elephant?

Why do we not do the things which we admit are right and businesslike? Because it is not the easiest way—because it means a little sacrifice. The average sanitary engineer prefers to take from his own business what he wants for himself and family whether it be cash or goods. He knows it's not business but he prefers to shut his eyes at this point and to go to it blind hoping by some act of providence that he will come out all right.

Yet this same man if his business were formed into a limited stock company or a partnership or if it became one of a chain of stores would receive a stated salary as manager and he and his family would have to live within this salary. Any materials taken from the business would be charged up to him and he would have to pay for them as would any other employee.

What does this all mean? Simply that under compulsion we can and will do the things we will not do when left to our own commands of conscience.

QUESTION OF SALARY

The salary a man should pay himself should not be confused with profits which every business man should aim to obtain

PLUMBER HAS UNIQUE PLAN OF REMUNERATION

A number of varying plans of remuneration are in effect among plumbers, some of which are described in this article. One plumber pays himself \$1.50 per hour and records every hour as a charge against administration or a job. Others pay themselves a salary.

over and above the costs of doing business. Salary is remuneration due the owner for managing the business, the same as salaries paid to other employees—it is a charge against the cost of doing business.

Now the question arises what should a man pay himself for managing his own business? This is not a question easily answered without knowing all the details affecting the particular business; however, actual experience coupled with considerable investigation on this subject, prompts me to offer the following food for thought:—

1. Investigations in other lines of business show that the salaries of managers run approximately 8 per cent. of the volume.
2. In arriving at a proper figure, find out about what you would have to pay a man as capable as yourself to come in and manage the business.
3. Some sanitary engineers pay themselves a salary equal to 50 per cent. more than they pay their best journeyman.
4. Others pay themselves a figure equal to what they believe they could earn elsewhere in a similar position.
5. An Ontario sanitary engineer who conducts a combination jobbing and contracting business keeps a time sheet and records every hour he spends, paying himself \$1.50 per hour.

The point is, adopt some method and stick to it. Draw your salary every week along with the other employees and open up a separate bank account for you and your wife to draw against. Then at the end of the year you will know whether or not your business is a profitable one and your wife will be in a better position to manage that great institution, the home, as both of you would like to see it.

The day of easy money with its first cousin careless methods is gone forever. To-day it is a case of the survival of the fittest. This does not necessarily mean that big business will eat up the small business man. On the contrary the small merchant who studies his business, gives service, keeps down overhead, knows where he is going from day to day and attends to his knitting has as bright a future at as any time in the history of business.

St. Raphael, Ont.—Roofing and plumbing contracts for \$40,000 convent, owned by parish of St. Raphael, have been let to J. J. Breard, 1277 St. Dominique St., Montreal.

Work of Government Demonstration Truck Misunderstood by Many in the Trade

Lack of Progressive Foresight on Part of Sanitary Engineers—
Petty Jealousy the Root of the Matter—Trade Should Co-operate
Independently With Work of Government Demonstration Truck

By EDWIN NEWSOME, Consulting Sanitary and Heating Engineer, who conducted
five months' series of lectures from the floor of the demonstration truck.

THAT the sanitary and heating industry appears to have in some way imbibed or become rather overloaded with shortsightedness, and petty jealousy cannot be easily overlooked. Even in the very rank and file of both manufacturers, jobbers and plumbing contractors alike, the same distrust, the same jealous feelings, are easily scented by any student of human nature.

The manufacturer who has the backbone to suggest any plan to improve conditions is at once "set upon" by all and sundry engaged in like business.

He is charged with having his dice loaded, and so on. The jobber, too, spends most of his time in discussing the underhanded selling policy of the other fellow and Ye Gods! if a progressive plumbing contractor has the nerve to call a meeting of the craft, with the object of overcoming some of the evils which the craft has been struggling against for many a century, every telephone in the locality is busy, one and another of the trade are phoning up to find out if the other fellow has any idea what our nervy craftsman has up his sleeve.

Even the Ontario Government, it appears, or at least the demonstrator of the truck has now come under suspicion. What is the matter with the craft? Just this: The whole industry is being coaxed to sell its wares. It has no sales policy. It doesn't have to sell. The law of natural progress demands that our incorporated towns and cities, every house when built must be equipped with a bathroom, and only those who live in such incorporated districts are selling the service of an industry which is second to none in possibilities. An industry which, in fact, has, up to date, only catered to city dwellers, leaving over 70 per cent. of our population severely alone, to live in "unplumbed" houses, forever and ever, Amen (so let it be).

Demonstration Truck Work Explained

When, in the year 1913, I became editor of Sanitary Engineer, I had an idea that in view of the fact that contract work in towns and cities was so competitive and profitless, that farm and rural houses would provide lots of work for the craft if properly catered to. As a matter of fact, there are isolated cases

where many members of the trade have left "city work" severely alone and have catered to the rural population, and in every case a lucrative and steadily expanding business has been the outcome.

I do not wish to appear boastful but I believe I have written more on this subject than any other person in Canada, under various nom-de-plumes, in trade papers, booklets, farm papers and in small town local newspapers. Last November I was appointed lecturer on the subjects of rural sanitation, sewage disposal systems and water supply, by the Agricultural Department of the Ontario Government.

These lectures resulted in actual business for several members of the trade who linked up their efforts with the work. While, sad to say, too many members of the craft have looked upon the work with suspicion.

After the expiration of one course of lectures, the question of extending the work was taken up, and I was asked to meet a committee of the Provincial members of Parliament, viz., the committee on agriculture, and a number of plans

VALUE OF GOV'T. LECTURES

"Newsome, if I had not heard you lecture on the subject of modern bathrooms in rural homes at the consolidated school last spring, I'd never have thought of having one put in my home."—Jas. McDonald, the Collector of Customs in Wellington made the above statement. This job cost \$1,300.

were discussed, it finally being decided that if the farmer's home could be fitted up with city conveniences, he, the farmer and his whole family, would be happier and healthier in such a home. But to show the farmer how this change could be made was a problem, and after discussing it, in and out of committee, it was decided to take steps to show the farmer just what he could have and the cost, as well as the real working, plan-

ning and layout of sanitary equipment in his home. And finally a decision was arrived at that a truck be fitted up complete with running water, etc., and be taken out to the door (as it were) of the farmer and rural resident.

I was then asked to work out the details, which I did, and later on was appointed by the government to fit up the truck. A man was procured to drive it, and assist where possible, to give advice to those who visited the truck. Bills and other forms of advertising were distributed and a five months' tour planned ahead, which took in the work of lecturing in 120 Ontario villages, towns and cities, and much information was given out.

Some of the bills distributed no doubt appeared to infer that the farmer would be shown how to do the actual work of installing his own plumbing. But those who know the lecturer, those who know their own business, also must know full well that a trade which has heretofore required years of study to make a man competent, could not be learned by any one receiving a few hours' instruction, and the lecturer knowing the business, would never attempt to fool his audience by telling them how to instal their own plumbing.

No doubt a few pointers were given out as to how to make simple repairs, put a washer on a faucet and so on, but who in the world wants such business these days? And who in the world would want a farmer to phone, write or otherwise acquaint a member of the craft with the fact that a faucet was leaking, particularly when it would require a 10, 20 or 30 mile drive. As a matter of fact, the farmer has been scared stiff with the idea that every minor repair to his plumbing (if he got it put in his home) would require a plumber to fix it, and therefore he has refrained from having city conveniences put in his home, to the detriment of his whole family and the sanitary engineering industry as well.

Something Must be Done

And the work of the truck went on. It will be out on the road next year. Lectures of a similar nature will be conducted in 12 counties this winter, and the importance of "city conveniences on the farm" will be enlarged on. But who is going to get the business? Not the

WHAT WOULD HAPPEN?

If every cent invested in the auto industry were withdrawn, if every auto was lost to the world, if every garage and auto industry were closed up, and no more cars could be procured, the world would still go on. But if Sanitary Engineering, plumbing fixtures and all modern bathrooms were cleared off the face of the earth and no more could be made, what would happen to civilization?

petty jealous man, not the fellow who thinks more of putting washers on faucets than installing a whole equipment, not the plumber who thinks he has a life-time strangle hold on every little repair to plumbing.

No! Such men, as a matter of fact, are wasting good food, taking up good room, using good clothes and are doing no good for themselves or anyone else. That sounds like straight-to-the-shoulder talk. The trade have not been given enough heart to heart stuff. But frankly, unless the trade as a whole wakens up, some other men will fill up the gap. Now, where do the trade stand?

Let us look back to the time when automobiles first came into being. Engineers demanded that every driver should be trained in a school of engineering. It was claimed that to drive one of those "gas buggies" was as important and dangerous as driving a locomotive, only more so to the public, because the latter ran on tracks, and so on.

Machinists demanded that none but men serving many years apprenticeship should be allowed to fix these engines of the common road, and even farmers claimed that they went with their lives in their hand when one of these "tin lizzies" was on the road. As a matter of fact, the world was going bughouse, and readers, we are right this minute in the same class as all those latter day obstructionists, and where is this short-sighted policy going to land the industry?

Handy men are going to see good business in installing plumbing in farm houses, just as the handy man has created the thousands and thousands of garages. There are many times more men engaged in the garage business than in the plumbing and heating industry. There are more car owners than bathroom owners. The auto industry is many times larger than the plumbing industry, yet, if every cent invested was withdrawn, if every car was lost to the world, if every garage and auto-factory were to be shut down and the whole auto industry closed up, the world would still go on, But:—

If sanitary engineering, plumbing fixtures, and so on, were all put out of business, what would happen to civil-

ization? Now, there's a question for you, Mr. Reader, you Mr. Manufacturer, and you, Mr. Jobber, to answer. How can you answer it? By dropping that jealousy, by getting busy, by standardization, by working toward the end that that great mass of farm and rural homes shall be fitted up with bathrooms, that all educational work be given all the support possible, that every handy man you know be made more handy and be given a job at installing plumbing in rural homes. And last, but not least, by any means, that less talk and more work be the rule from now on, rather than the exception.

TRADING FUNCTIONS

(Continued from page 13)

the report of the Joint Commission of Agricultural Inquiry:

"The retailer performs the final function of distribution of essential commodities and gives fulfillment to all preceding efforts by making merchandise available to consumers at the time, place, and in the form required by them.

"The retailer's true function is that of serving as a purchasing agent for his community; as such he selects and carries a reserve supply of merchandise to

meet the requirements of the individual consumer.

"When the retailer enters business, he assumes the responsibility of performing a public function, that of providing commodities and services to his community, economically and conveniently, and maintaining such environment as is necessary and desirable to the consumers who support him. If he fails in his responsibility and performs only as a distributing agent for the manufacturer, he ceases to be an economic factor in the community which he serves."

WHY? WHY? WHY?

There are many times more owners of autos than bathrooms in Canadian homes. Why?

There are many times more garage men than plumbers. Why?

Over 70 per cent. of Canadian homes lack modern bathrooms. Why?

The auto industry is many times larger than the plumbing industry. Why?

Pipe Fittings Tell Story of the Big Fight



A novel way of attracting attention to the window display was the reproduction in pipe fittings of the figures of Dempsey and Firpo by Wood, Vallance Co., Nelson, B.C., at the time of the recent fight between these two prominent fighters. The figures were made entirely from pipe fittings taken from stock, the idea being the product of the ingenuity of S. P. Bostock, one of the employees of the firm. For a week preceding the fight both figures were erect, but after the result was announced the Firpo figure was laid prostrate.

Standardization of Septic Tanks and Sewage Disposal Systems Necessary

Previous Articles on Subject of Rural Sewage Disposal Based Upon Twenty Years' Experience — Intermittent Discharge is Necessary—Special Plan for Use of Sanitary Engineers

Written for Sanitary Engineer by EDWIN NEWSOME, Lecturer on Rural Sanitation for Ontario Department of Agriculture

THERE is no part of our work at the present day which requires more real study than does the question of sewage disposal systems, and the most important feature in such a system is the intermittent discharge. Next comes the design of the septic tank, which should in all cases comprise a tank with two to three separate compartments, two being the most popular and advisable where the flow of sewage into same is predetermined and reasonably constant as regards the quantity per day per person.

Regarding the importance of the intermittent discharge, it must be recognized first that the effluent or fluid which is free from solids is best disposed of when discharged into mother earth. The soil bacteria then treat this effluent and, of course, the greater the area of ground, the more efficient will the disposing process be. The effluent which is allowed to simply "dribble" away from a compartment cannot possibly be evenly distributed over a wide area because it requires some force to so distribute the effluent.

The most misleading condition is that some soils will absorb more sewage than others, and a state of absorption is taking place, thereby creating a possibly dangerous condition which may take several years to materialize, such as finally polluting every well in the neighborhood.

For example, the writer has been touring the province of Ontario all summer. Scores of cases were found where apparently such "dribbling" tanks have given every satisfaction for several years, but the water in wells all around has become polluted.

Some time ago a farmer's family were taken ill. The doctor could not find out the cause, but suggested that possibly the water was the cause. The farmer was indignant and showed the doctor a sample of the water, which was beautifully clear and no foul odor in evidence. After much persuasion, the water was tested and found to be polluted with sewage. "It cannot be the septic tank," the farmer. "because it has been working for years." It was a "dribbler." To convince the farmer that something was getting into the well that ought not to, he was asked to cease using the plumbing fixtures and to permit no sewage or waste from the fixtures to enter the (septic tank?). This

he did and in less than two weeks time the well went dry. This is an actual case and is not exaggerated one iota.

This septic tank was nearly 100 feet from the well, and it has been stated by so-called health authorities that when sewage has passed through a certain quantity of earth it becomes purified. To such an assumption the writer strongly objects because it cannot be borne out by facts.

Purification of sewage is best and most naturally accomplished when it is discharged intermittently and is effectively distributed over a wide area of ground and into a system of field tile piping which is laid not more than 18 inches below the surface of the ground so as to benefit by nature's three most effective agencies, namely, soil bacteria, which abound in largest quantities at or about the depth referred to; secondly, a natural quantity of air, where the aerobic germ in the soil abounds, and, thirdly, the sun. This latter-named agency assists to keep the sewage warm and throughout the greater part of the year actually evaporates a large quantity of it, a process which cannot be questioned even by the most mercenary person. Anyone who traffics in "contraptions" that are sold to dispose of sewage and do not really dispose, but rather pollute either the soil or water and finally endanger the public health, cannot be other than "mercenary traffickers." If such goods had no bearing upon health matters, the sale of them would simply be so much of a money gain or loss.

The writer does not wish his ideas or experiences to be accepted without question, but rather that some sound principles be adopted based upon the results gained from all parts of the Dominion. At the same time, only the best and most sanitary methods should be adopted so that no apparatus shall be put on the market that will not come up to the best and most practical sanitary standards, and therefore some attempt should be made to that end.

To that end, the accompanying plan, elevation and table has been specially compiled for Sanitary Engineer. The design and whole method has been adopted for over 20 years and absolutely no known complaints have been received by the writer.

Thousands of such systems have been installed and are in use at the present

day. By adopting the plan and design as shown, at least some attempt will have been made toward establishing a standard that to date has stood the acid test for many years.

We would suggest that this sheet be filed for constant reference and if any of our readers wish to procure additional copies, a permanent plate has been made and copies may be procured free on application. Always refer to the page and date of issue in which this illustration appears and thus ensure receiving the one required.

SALES TAX INCLUDED IN PRICE QUOTED, SAYS REGULATIONS

(Continued from page 14)

less value, the amount of tax on such difference may be credited to purchaser unless already paid to the Department of Customs, when credit may be taken on next return. If the goods are not replaced and total purchase price is refunded, the vendor may refund or credit the amount of tax collected or charged to the purchaser. If paid to the Department, credit may be taken in the vendor's next tax return.

When a licensed manufacturer or wholesaler ships taxable goods for which he is required to submit a tax return and if such goods are received in bad condition or destroyed in transit and not returned to shipper, the licensee may make a deduction on his tax return for the tax on amount of the allowance granted by him to the consignee provided that notice of damage or destruction is given in writing to the local Customs Collector within 14 days.

Fuel oil, illuminating oil, lubricating oil, kerosene or coal oil over .725 specific gravity may be delivered free of sales tax for use as ship's stores to any vessel bound on an ocean voyage to a port outside of Canada.

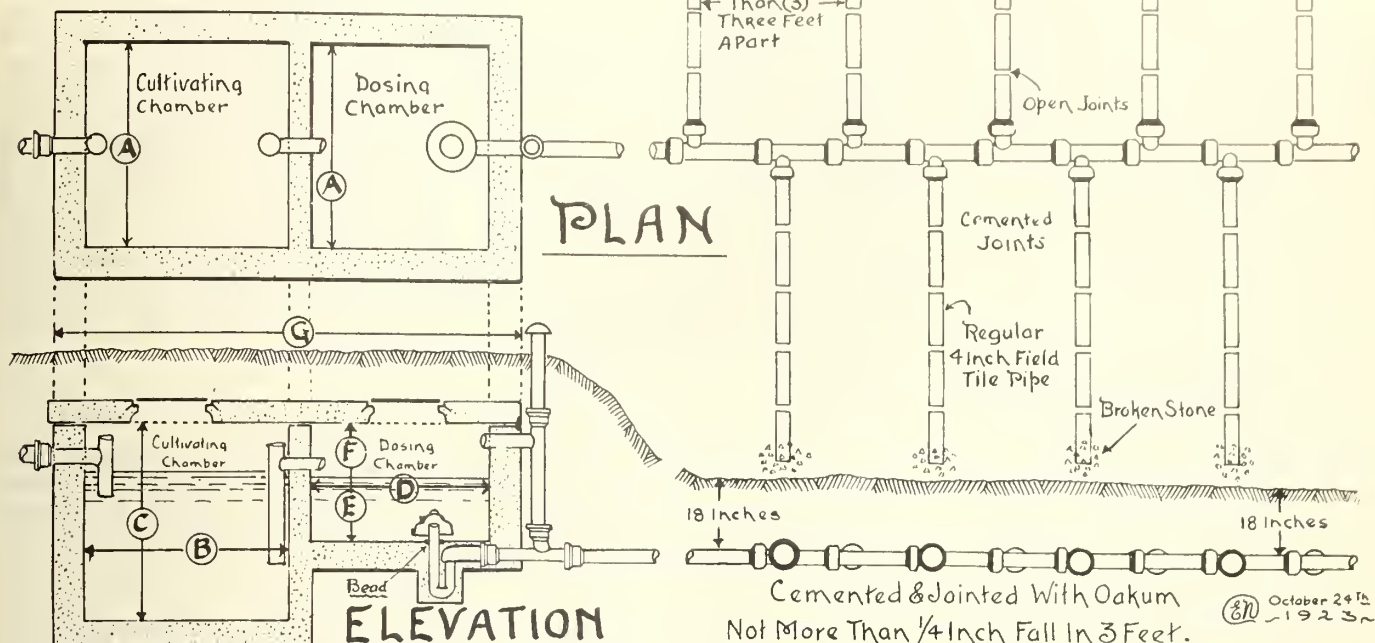
No tax is payable on repairs except in respect of material supplied.

Custom work performed for a licensed manufacturer or wholesaler is not subject to the tax provided they quote sales tax license numbers on the order for such work and certify that the goods are for resale.

Sales tax is not to apply on the charge for freight for transporting a taxable article from a licensed manufacturer to the purchaser provided the charge is shown as a separate item on the invoice.

PLANS AND SPECIFICATIONS FOR SEPTIC TANKS- And Sewage Disposal Systems For Rural Homes And Unsewered Districts.

All Hub Joints Must Be Cemented
All Open Joints Should Be Covered With Coarse Gravel Broken Stone, Railway Cinder Etc.,
All Laterals Must Be At Least 3 Feet Apart—
—Laid Level. $\frac{1}{4}$ Inch Opening, Not More Than 18 Inches Or Less Than 12 Inches Below Surface.



Don't Forget To Install The Syphon Perfectly Level. With Bead At Floor Of Dosing Chamber.
Always Prime The Syphon By Filling Both Legs With Water Before Placing Bell In Position.

September Production of Iron and Steel Shows Slight Drop

THE production of pig iron and ferro-alloys in Canada during the month of September was 75,216 long tons, a decline of 18.8 per cent. from the August production of 92,587 tons. The output of basic pig iron was 27.5 per cent. less at 46,580 tons; foundry iron amounted to 17,536 tons, a decline of 29.8 per cent., while the output of malleable iron showed an increase of 232 per cent. to a total of 11,100 tons.

As usual, practically the whole output of basic pig iron reported was made for the use of the producing firms; but the slackening demand for iron was reflected in the lowered output. September tonnage made for use was only about two-thirds of that reported in August. Foundry iron and malleable iron, on the other hand, were largely made for sale.

Ferro-alloys rose to 2,581 tons, a slight increase over the 2,258 tons in August. The production consisted almost entirely

of the grade containing 15 per cent. silicon content.

Two furnaces at Sault Ste. Marie were banked, leaving seven furnaces in blast at the end of the month, including two at Hamilton, one at Port Colborne, one at Sault Ste. Marie and three at Sydney.

The low output of pig iron in September was reflected in a decreased production of steel ingots and castings, the absolute quantity being 66,334 gross tons as compared with 105,056 tons, the preceding month. Practically the whole of this decline was in the production of basic open hearth steel ingots for the further use of the reporting firms, production of direct steel castings remaining at about the same level as during August.

"WHAT I'VE BEEN LOOKING FOR."

G. L. Rammage, Tottenham, Ont., says: "Sanitary Engineer is just what I've been looking for. The markets are a most useful department."

Orders booked during September for machine tools and other steel products were said to be for small quantities only. Activity in construction has stimulated the demand for machine tools, and dealers also reported an improvement in the quantity of second-hand equipment turned over. Mining development has further stimulated this demand and machinery interests were reported as anticipating an active demand for their products.

WOULD DEVELOP IRON RESOURCES

Fort William, Ont.—The Chamber of Commerce are taking an active interest in the move to secure legislation which will bring into development the iron ore resources now at a standstill. A memorial, to be presented to the government, includes recommendations that a geologist be assigned to the work of surveying the iron ore regions of Ontario; that a mining engineer be retained to keep in touch with the iron ore movement, and that equipment for testing be provided.

Heating and Ventilating Department

Some Good Pointers on Installing and Connecting Warm Air Furnace Pipes

Simple Rules Set Down for Balancing the Supply of Cold Air and Delivery of Warm Air

IN THE following there is much useful information as to the manner of installing and connecting furnace pipes.

Suggestions for Installing Pipe Furnaces

1. Each warm air pipe should have an upward pitch from the heater of not less than one inch per foot.
2. The pitch of all warm air pipes should be alike.
3. All warm air pipes in cellar or basement should be covered with sheet asbestos pipe covering. Not less than 10-pound sheathing is recommended.
4. All warm air risers should be carried up in inside partitions, wherever possible.
5. In cases where it is absolutely necessary to carry up warm air risers in outer walls, such risers should be so thoroughly protected as to be completely insulated.
6. A separate compartment should be made in the crown or bonnet of the surface for each extra long or winding air pipe, thus insuring a positive supply of warm air to that pipe.
7. Never use smaller than eight inch pipe.

8. When warm air pipes are taken out of the top of the bonnet of the heater, the tops of all the elbows should be on a level, so that an equal current of air can fill all the pipes.

Note: As a 12-inch elbow is so much higher than an 8-inch elbow, in order to have both pipes work properly, the top of the 8-inch elbow should be as high as the top of the 12-inch. This applies to all pipes taken from the top of the heater. The same rule applies as nearly as possible where pipes are taken from the side of the bonnet.

9. All warm air pipes should have dampers close to the heater, so the heat from them can be regulated.

10. In heating a room on the cold side of the house, or a room having a large amount of glass surface, place one register in the floor as near as possible to the furnace and place a cold air register face in the floor under or near a window and connect this cold air register by means of a separate duct to the bottom of casing, thus removing the cold air out of the room and at the same time providing a flow of warm air into the room.

Directions and Rules for Cold Air Supply

1. The cold air supply to the heater must be adequate.
2. Always bring in the cold air from the coldest side of the house, west, northwest or north.
3. The cold air openings into the heater should be of equal capacity to all of the warm air pipes.

Stock Sizes of Pipe

Diameter of Round Pipe	Area of Pipe Sq. In.
8	50
9	64
10	78
11	95
12	113
13	132
14	154
15	176
16	201
17	227
18	254
19	283
20	314
21	346
22	380
23	411
24	452

4. A cold air pit under the heater should never be more than 14 inches deep. A pier in centre is desirable to support ash pit where necessary. When more than one air opening, put partition across pit.

5. In connecting cold air box with heater, it is always most desirable to make the connection in the rear of the heater, or by having a cold air pit under the heater.

6. Heaters must have and will have air, and this air should be supplied from the cold air opening at the bottom of the casing. The top of any cold air opening should never be above the level of the grate.

7. The cold air box opening into casing of heater should never be higher than the total height of ash pit and should enter the heater from the rear to obtain the best results.

8. The size of cold air boxes which supply the heater when taken from a main hall or other room down to the heater, should always have the full capacity of all the pipes combined.

9. All return cold air pipes larger than 12-inch should enter a "receiver" at the base of furnace. Pipes smaller than 12 inches may be fastened directly in the casing without use of a "receiver."

The table shows the right size of furnace pipes (lower number shows size of pipe for first floor, upper number size of pipe for second floor) to heat rooms of various dimensions, when two sides are exposed, temperature at register 140 deg., room 70 deg. Outside zero. Room 8 to 17 feet in width assumed to be 9 feet high. Rooms 18 to 20 feet in width assumed to be 10 feet high. For other heights, temperatures or exposures make a suitable allowance. When first-floor pipes are longer than 15 feet, use one size larger than that stated for every 15 feet.

MUST INSTALL PLUMBING

St. John, N. B.—A change in the plumbing and drainage regulations made by the Provincial Health Department will make it necessary for some residents of Fairville and other places not incorporated, but having a water supply system, to instal modern plumbing. There is said to be some objection on the grounds of the expense, but the department points out that it is necessary in the interests of health.

HEAT CIVIC BUILDINGS WITH GAS

Edmonton.—The Northwestern Utilities Co., which is engaged in bringing gas to Edmonton from the Viking field, has entered a contract with the city, under which the civic buildings are to be heated with gas. It is estimated that the city will save \$5,000 a year by substituting gas for coal. Buildings included in the contract are the city hall, four telephone buildings, five fire stations, two public libraries, two public markets, police station, city stores building and the Royal Alexandra hospital.

CANNOT LAY MAINS UNDER C.N.R.

Windsor, Ont.—Because the Canadian National Railway has refused permission to Essex Utilities Commission to use its right of way to lay water mains that will serve filtered water to the border municipalities, plans of the Commission must be revised. The railway cannot allow its property to be used because the property will be needed to extend trackage running into Windsor. The new filtration plant, which will cost approximately \$1 000 000, will be ready in the fall of 1924.

Clean-out Tees on Some Elbows Save the Pipe Abusive Treatment and Facilitate Cleaning

The Sketch of the Design Given Below Shows How a Working Drawing of a Tee of This Sort Can be Quickly Laid Out

Written for Sanitary Engineer by O. W. KOTHE, Principal, St. Louis Technical Institute

ON SMOKEPIPES, and for that matter, also all blow piping and many other forms of piping, it is often necessary to place clean-out tees on the heel of certain elbows. This saves taking the pipe down at intervals, which is always more or less abusive to the pipe, but by having tees in the elbows for clean-outs, the pipes can be blown out with a hose or cleaned with a stick. The design of elbow or the number of pieces of diameter it is to have, does not matter, as in this case we have the 4-piece elbow with the tee set on the centre line of the lower base. This tee can be made any size desired.

After the elbow is designed, we draw the centre line for tee and describe the section M and divide one-half of it in any number of equal spaces, and we drop lines into the elevation. Now to make the proper intersections between the tee and the elbow, we must develop the

mitre line by transferring the section M into plan or N. From the points 1-2-3 in N we draw horizontal lines to intersect the circle for elbow O, in points 1'-2'-3'-4'. From each of these points we erect lines to the first mitre as at 1-2-3-4 and then extend them parallel to each gore piece to the second mitre, then extend them to the third mitre. Now, where these lines intersect those dropped from section M, as in points 1'-2'-3'-4'-3'-2'-1", sketch a curved line and you have the mitre between the tee and the elbow.

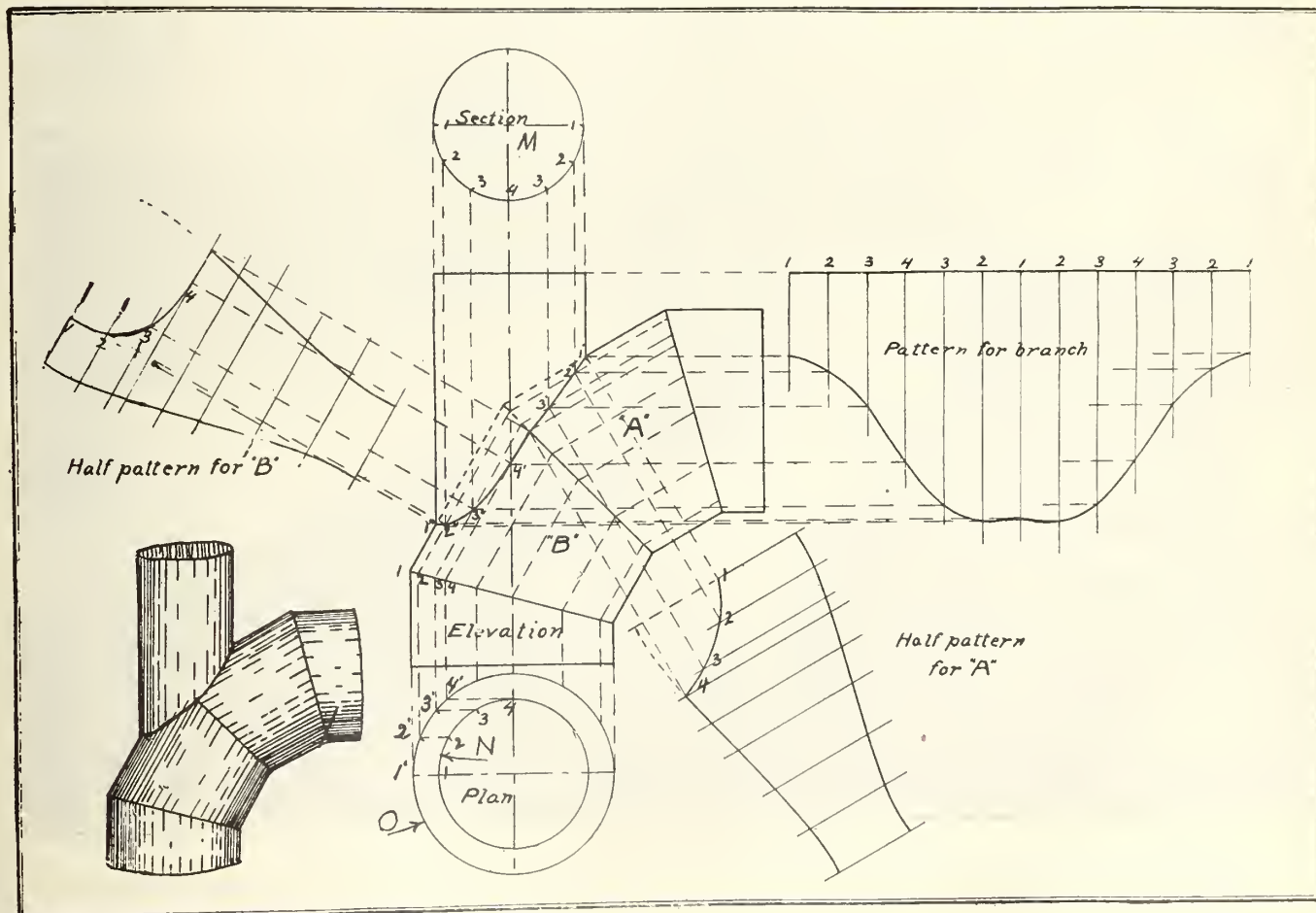
To set off the pattern for tee, pick the girth from N and set it off on a line 1-1 to the right of the elevation. From these points drop stretchout lines and then from each point in mitre line project over lines to intersect similar lines in stretchout. Trace a line through these new intersections and the pattern for branch is finished. Laps for flang-

ing and riveting the longitudinal seam must be allowed extra. The matter of making a rim and a cap to fit over the end of tee is very simple and hardly needs mention.

To set out the patterns for the several pieces of elbow, the general practice is to set the tee on the finished elbow and mark out the opening; but should it be desired to develop the opening in the patterns, then these can be projected much the same as any ordinary elbow is developed. So pick the girth from plan section O as 1'-2'-3'-4', etc., and set it off on a straight line in patterns A and B. The balance of the lines are also picked from the section O and then lines are drawn parallel with those gore pieces of elevation. By projecting lines from the mitre of elevation as 1'-2'-3'-4', also 4'-3'-2'-1", we develop the patterns for the gore pieces A and B. The end pattern can be easily set off the same as has been explained in past issues.

ASBESTOS MERGER SCHEME FAILS

Montreal.—The proposed \$25,000,000 merger of Canadian asbestos corporations will not materialize, according to the statement of the chief executives of one of the leading companies which had agreed to consider the matter. The price fixed for some of the companies is said to have been so low that they would have had to operate at a loss.



Speed Plus Efficiency Motto Appreciated by Plumbers' Customers

Public Antipathy to Workmen Loafing on the Job is Basis of Maritime Plumbers' Unique Advertising—Tells Prospects That Housewife is Not Unnecessarily Troubled by Work to be Done

VERY frequently, in the smaller cities, sanitary and heating engineers can be found who equal at least in progressiveness, their fellow members of the trade in the larger cities.

In Fredericton, N. B., A. F. Betts is located. He was one of the first plumbing and heating contractors to describe himself as "sanitary and heating engineer." Instead of using just his name in his advertising, such as is the case with many others in the trade, Mr. Betts always names his address, his post office box number and the numbers of his two telephones. In this way he simplifies, from the standpoint of the customer, the route between patron and the engineer. He realizes that many in his district and the rural sections of central New Brunswick, do not know the location of his store, and this must be brought home to them. As he special-

izes in mail and telephone orders, he finds it advisable at all times to acquaint the general public with his facilities for handling such orders.

At the present time, Mr. Betts is opening a campaign which he expects to add a stimulus to his business. He believes that many persons object to loafing on the job on the part of journeymen and helpers. So, he has instituted a drive in behalf of speed, plus efficiency. To all those whom he believes would be prospective customers of his, Mr. Betts is directing the following appeal:

"Right here in the shop—we have every necessary appliance for plumbing and steamfitting work. After we have looked over a job, decided upon what is needed, and taken accurate measurements, the good housewife is troubled by us no more till we appear with everything ready to put in its proper place. The

wise people are having us look after their plumbing now."

Retain old customers and acquire new ones by means of the speed-plus-efficiency motto, is now the watchword of the Betts business. Intermingled with a spirit of aggressiveness, this motto is accomplishing much toward stimulating the business of this plumbing and heating contractor.

FIELD SAFETY WEEK CAMPAIGN

Toronto.—A Safety Week campaign was promoted by the Steel Company of Canada, this plan having been adopted to stimulate special interest in the subject among all concerned. According to Ross H. McMaster, vice-president, the campaign aroused much interest among the employees and went a long way toward securing their co-operation in the prevention of unnecessary accidents.



It has been proven repeatedly that the light, attractive showroom has done much in increasing plumbing goods sales among the women customers. This photo shows a simple yet effective arrangement of showroom stock.

How to Raise Your Own Salary

Written for SANITARY ENGINEER, by NAPOLEON HILL

For more than twenty-five years I have been studying people who sell personal services for a living, including, in particular, myself, and have had this regrettable fact forced upon me—that most people make a bad job selling their services, because they try to collect in advance or try to collect far more than they deliver.—The Author.

PERHAPS you have not thought of it in this way, but the truth is, that you have within your power the raising of your own salary.

This is how you do it:

First: Find the sort of work that you love best; the work in which you can pour your best effort with enthusiasm. Go at this work with the determination to render more service and better service than that for which you are paid.

Next, make yourself so agreeable to everyone with whom you work that you will make many friends and no enemies.

So speak of your employer that your fellow-workmen will not become prejudiced against him. Encourage those with whom you work to give a full day's work for a day's wages, which you can do in no better way than that of setting an example by doing this yourself.

If you hear someone slandering your employer, come to his defense, tactfully, but firmly, by preaching a polite little sermon on the virtue of loyalty to those from whom one draws his meal ticket.

When you are off duty, boost your employer and the business in which he is engaged in every way you can. By and by the accumulative effect of this sort of conduct on your part will raise you to the highest position for which you are fitted, and with the highest salary paid for such work.

A short time ago this writer heard the inside story of the Worth business policy of the Worth Department Store. The story was convincing; much more so than any written advertisement ever could have been. The story was told by Miss Gallagher, one of the store's buyers, as she talked of her employers in a spirit of enthusiasm, at a time when she

had not the slightest notion that she was interesting me in the Worth stores. If the Advertising Manager of that store could have told the story to the public just as she told it to a group of people in the drawing room of the home of a friend the afternoon that I heard it, he would fill that store with customers from morning until night.

Inquiry developed the fact that Miss Gallagher started in that store only a short time ago as a stock girl. Passing hundreds of other clerks with a rapidity which they no doubt did not understand why, she was advanced to a high position at a wholesome salary. I doubt if she, herself, understands fully just why she passed the others by. I doubt if she understands that she literally raised her own salary. By nature she happened to be a booster at heart. Might it not be well for those of us who are not loyal boosters by nature, if we deliberately developed this quality?

In the eyes of Miss Gallagher there is no employer on earth quite so fair and worthy as her own. No doubt Mr. Solomon, head of the Worth stores, thinks the same of Miss Gallagher. No doubt he thinks he is setting her salary, but in reality she is setting it herself, by and through her loyalty and her habit of performing more service and better service than she believes she is paid to perform.

You can be a "Miss Gallagher" in your own job, whether you work for Worth Stores or John Smith in Podunk. You can raise your own salary through the self-same principles that have helped this young woman to advance to a high position of responsibility and high pay, ahead of hundreds of others who had the advantage of her in that they had been with the Worth Stores longer than she.



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A Big Market

THE typical farm house of the past was about as devoid of plumbing as it could possibly be. What little it did have was probably installed by the farmer himself. Frequently it consisted of nothing more than a kitchen sink with a drain spout of lead pipe extending to the outside of the house and emptying into a trench that drained into a field, or brook.

Times, however, are changing. The farmer is becoming more modern. In the farming districts are to be found the largest number of automobiles per capita. These automobiles are bringing the farmer into closer touch with the outside world. They enable him to make more frequent trips to the village and the city. They are creating a greater desire for all things that are up-to-date.

Everything that will save labor is finding a ready market with the farmer. He is buying tractors, electric power and light plants, oil engines, and everything else that will make the work on the farm easier. Many farm papers are giving a great deal of space to the modernizing of the farm home.

Manufacturers of pumping outfits and electrical appliances are finding a constantly increasing market with the farmers. As a matter of fact, the farm market is in many respects better and larger than the market in the cities.

The farmer is not affected to the same extent by business inflation and business depression as are industrial centres. A country store-keeper, who has been selling to farmers for more than thirty years, states that he has never experienced the great increase in business followed by a serious falling off that is experienced by the average storekeeper in the city. This means that when business has once been cultivated with the farmer it can be depended upon. It is not going to be subject to as great variation as will business in the city.

The Market Around the Corner

QUITE recently, at a meeting of plumbers, someone said, "Business is selling the service that the goods will render."

In these busy days, with the plumber giving more and more time to thoughts of selling, the hazard of "immediate profit" zeal sometime results in failing to learn the complete service that the goods will render. The market before our eyes eclipses the market around the corner.

In selling plumbing appliances, the market before our eyes is the "home" market, gigantic, undersold, waiting for modern labor-saving appliances. It is a primary market, worthy of first consideration.

How big really is it?

The United States Census shows that in 1900 there were 5,127,935 owned homes, free from all encumbrances, in 1920,

6,862,520 "free" homes. "Mortgage free" indicates but one thing—that these owners are well-to-do citizens, able and willing to enjoy the better things of life. They are prospects for extra bathrooms, shower baths, water supply systems if they live in the country, and room heaters and automatic water heaters if their homes are supplied with gas.

It is reasonable to assume that 75% of these homes are supplied with this convenient, economical fuel. Add to this list of what may be termed "preferred prospects," 4,252,447 owners of homes in different stages of encumbrance. These, too, are real gas appliance prospects, in many respects quite as good as the owners of unencumbered or unmortgaged homes.

This, then, is the market before our eyes—the principal market, really awe-inspiring in its selling potentialities.

But don't let us forget the market "around the corner."

Shall I Buy Now?

SINCE the issuance of regulations governing the new Sales Tax, all branches of the trade have been busy figuring out the technicalities as they apply particularly to themselves. As was to be expected with such a drastic change in the principle of collection, much of the misunderstanding which characterized the introduction of the present Sales Tax, is being repeated. While there may be something to be said for the advantages of the new regulations, it is regrettable that such disturbing influences have continually to be brought to bear on the business life of this country at times when many other difficulties beset it. The machinery of the present tax has just now commenced to work with something approaching smoothness when it has largely to be altered.

While there is as yet insufficient information concerning the effect of the new regulations upon all branches of trade to say whether or not the plan is the most practicable, it is quite evident that their application holds some interesting possibilities. Some considerable change in hardware prices is to be expected under the new regulations, a number of lines having already been altered. In at least one case a reduction in price to the retailer is made coincident with the plan of incorporating sales tax in the price quoted, and the odd part of it is that the wholesalers' margin on the line has been reduced. There were some extenuating circumstances in this particular case, but the question arises as to which branch of the distributing machinery is going to be called upon to bear the cost of the tax where the resale price is being left unaltered and the manufacturer is increasing his prices to take care of the tax. In one case the manufacturer is absorbing 1 per cent. of the new tax, increasing prices 5 per cent. Another has eliminated the cash discount, in the meantime pending a decision on future policy. The whole price movement is mixed and it is therefore a time when retailers should watch their sources of information very closely and adjust their buying policy accordingly. In this connection it is well to keep in mind that while there would appear to be an advantage for retailers buying goods prior to December 31, the basis on which various manufacturers are making quotations makes it impossible to set any definite policy applying to all lines. On one line of polishes prices are announced for immediate business, with a 5 per cent. increase after January 1. In such cases some advantage may accrue, but there are other cases where prices now announced include sales tax after January 1, and if bought prior to that time would carry the present 2½ per cent. tax, thus being a disadvantage for immediate buying. The markets require careful watching these days.

The Handling of Men

NOTHING will so hamper a man as too constant supervision, designed to check him up minutely with respect to the details of his work, and if he is a real live, competent individual he will resent such a policy in time and seek employment where he can exercise his powers to the fullest. Further, men prove themselves worthy of responsibility only if they are given full authority in their particular spheres. To say that there is responsibility where there is not full authority, is to express a paradox.

THE executive who disregards his immediate subordinates and deals directly with those immediately under these subordinates or with the workmen themselves, is unjust to the men whom he has placed in positions of authority.

WHEN new people are brought into an organization, due allowance should be made for the change in relationships that is necessitated.

THE executive should study men in order that he may be able to arouse in them the greatest possible amount of initiative. Carnegie adopted the right basis upon which to develop men. He did not care anything at all about a man who did not already look upon himself as a future partner in the business. Cultivate this ideal in your men, give them tasks that will demand all their reserve powers, and then watch them develop initiative.

THE executive should give his workers every opportunity to make good and win their way to positions of responsibility. Many managers seem to be satisfied with nothing less than the polished cut diamond, and have a hard time finding it, whereas if they would look for the uncut diamond "in the rough" they could find plenty of them. A certain rough-and-ready, hard-fisted manager who had the right idea, expressed it in these words: "My business is not to find men; it is to make 'em."

THE manager of the future will not be a manager at all, at least not according to the present interpretation of the term; he will be a co-ordinator and a guide. Primarily, instead of doing, he will decide; rather than counsel, he will seek advice; instead of achieving, he will endeavor to inspire others to achieve. He will not spend his time on details, he will delegate them to others. He will not be a driver, he will lead. Instead of looking at things from the standpoint of dollars, he will consider them from the standpoint of sense. In other words, instead of always asking, "How many dollars can I make?" he will ask the more important question first of all, "How many men can I make?"

Hatched by the Warmth of Courtesy

Minute Message No. 35

Written for Sanitary Engineer by FRANK STOCKDALE
General Selling Series



TURNING a looker into a buyer is a daily opportunity in your shop.

A looker is a buyer "in the shell." Every time one enters your shop, someone has a chance to "hatch out" a customer.

Some stores make a business of hatching them out; others handle them in a way which chills the "eggs" and then complain because business is "rotten."

The wise plumber uses all the warmth of courteous treatment and all the patience of an "incubator" to bring the "lookers" out of their "shells"—"hatched" into satisfied customers.

Some call it salesmanship, but it is only an earnest desire to serve and please.

THINK IT OVER--APPLY IT TO YOUR BUSINESS

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in the Plumbing Trade in Canada.

News Notes From Coast to Coast

Doings in the Plumbing and Heating Industry

NEW FIRMS

Walkerton, Ont.—Sam Fisk and Herb Privat, the latter moving here recently from Owen Sound, have opened a general plumbing and repair business under the firm name of Fisk & Privat.

BUSINESS CHANGES

Revelstoke, B. C.—Sidney Humphrey, local plumber and steamfitter, has moved into his new building opposite the King Edward Hotel. A feature of the new quarters is the large showroom, where a well-assorted stock is being displayed.

Toronto.—Moody & Brooks have taken over the plumbing and heating business formerly conducted at 1375 Bathurst Street by Ross Belyea.

NOT DISCONTINUING BUSINESS

Saskatoon, Sask.—E. Riley, plumber and steamfitter, 414 20th St. West, is not discontinuing business, reports to the effect that he was having been based on mistaken information.

NEW BUILDING PLANNED

Vancouver.—The Army and Navy Veterans' Association have let the general contract for their new \$8,000 clubhouse at Fraser and Forty-fifth Aves. The building will be equipped with hot water heating, the sub-contract for this part of the work not having been let as yet.

TALKS SANITATION TO ROTARIANS

Kamloops, B. C.—At a recent gathering of the Rotary Club, an interesting talk on domestic sanitation was given by A. E. Sjoquist, dealing with the subject both from a local and provincial standpoint. He stated that Kamloops ranked high in the matter of sanitation, out of approximately 900 homes, 98 per cent. having running water, 90 per cent. being connected with the city sewer system, 6 per cent. could connect and should be forced to, and only 4 per cent. have cesspits or tanks.

HYDRO PLAN STEAM GENERATION

Toronto.—In anticipation of the time when the demand for power in Ontario shall exceed the supply at present available, the Ontario Hydro Power Commission is considering plans for the establishment of plants that shall generate electricity by steam. Sir Adam Beck, chairman of the commission, has made this statement, saying that he had been greatly impressed with the possibilities of generation of steam during a recent visit paid to the Ford Motor plant in Detroit.

PERSONAL

Major L. L. Anthes, managing director of the Anthes Foundry Co., is spending three weeks on a shooting trip in Parry Sound.

WILL IMPROVE WATER SUPPLY

Goderich, Ont.—The Water & Light Commission have engaged E. H. Darling of Hamilton as engineer to have charge of the installation of the new intake. Construction will be commenced in the spring, the new intake resulting from pressure brought to bear upon the local authorities by the Provincial Board of Health.

ARTICLES MOST INFORMATIVE.

G. Jobe, tinsmith for F. Butchart, McLeod, Ont., says: "I have followed with interest the patterns and descriptions in the tinsmithing department of Sanitary Engineer, also the articles on cesspools, and have found them all most informative."

ADDITION IS NECESSARY

Simcoe, Ont.—An extension to the Simcoe High School cannot be delayed any longer, according to the inspector who visited here recently. The addition will include several rooms, an extension to the heating plant and the re-plumbing of the whole school.

SEWER SYSTEM IS NECESSARY

Toronto.—Ratepayers of Mount Pleasant are agreed on the necessity of a complete sewer system at once, but will object to any taxation which does not appeal to them as reasonable, according to opinion registered at the opening fall meeting of the Mount Pleasant Ratepayers' Association.

PLUMBER BURIED IN CAVE-IN

London, Ont.—David Egget, of the firm of Egget & Co., plumbers and steamfitters, had a narrow escape from serious injury when the wall of the excavation in which he was working at Byron Sanitarium caved in, burying him in the debris. His most serious injury was a cut on the nose from the shovel of an over-zealous rescuer.

OBITUARY

Brantford, Ont.—Word has been received in this city of the death of W. H. Paulin, in Holland, Man. The late Mr. Paulin was in the plumbing and tin-smithing business on Peel Street here for many years in the premises now occupied by James Holland & Sons. Recently he had been following his trade in Holland, where two of his daughters reside.

WILL AMEND PLUMBING BYLAW

London, Ont.—Acting on a report of Plumbing Inspector Young, a meeting of the plumbers, master plumbers and others interested in the trade, together with the Board of Health and representatives of the Board of Works, is to be held shortly with a view to amending the present plumbing bylaw.

FISH IN STANDPIPE

Bridgeburg, Ont.—Cleaning out the local water standard revealed the cause of Bridgeburg's low water standard to result from a large deposit of silt on the bottom of the big reservoir, while fish of a fair size were found by the workmen. Another test is to be made by the Provincial authorities to ascertain whether the water is now up to standard.

BUILDING WOMEN'S RESIDENCE

Kingston, Ont.—A new residence is to be erected for the women students of Queen's University. Tenders on the roofing, sheet metal, plumbing, heating and ventilating are now being called for by Dr. W. E. McNeill, Registrar, Queen's University, and will be received up to noon, Nov. 8.

VOTE ON CENTRAL HEATING

Winnipeg.—The City Council has decided to submit a bylaw to the ratepayers for the establishment of a \$875,000 central steam heating plant. The ratepayers will be asked to vote on a debenture issue of \$550,000, and approve the scheme for co-ordinating a central steam heating plant with the "Hydro standby plant."

PLUMBING BYLAW THOUGHT TOO STRICT

Ottawa.—After hearing representations of Ald. Nolan at a recent meeting of the Board of Control, that body agreed to ask Plumbing Inspector Nolan to modify some of the interpretations he has been making of the recent amendments to the plumbing bylaw. These interpretations dealt mainly with the counting of house fixtures for the purpose of making charges for water, it being felt that some combinations of equipment were being counted as two which should be counted as one fixture.

Contracts Awarded

Guelph, Ont.—The city council has awarded the plumbing contract in connection with the grand stand to be built to George Fairley.

Hamilton.—The board of education has awarded the ventilating, plumbing and heating contracts on school to be built on Murray St., to Adam Clark, 7 Main St.

Kitchener.—The ventilating contract for the alterations and \$100,000 addition to be built to the House of Refuge has been awarded to Dunker Bros.

Mabou, C. B.—The plumbing and heating contracts for the \$115,000 county asylum has been awarded to W. H. Thorne, Fredericton, N. B.

Mount Dennis, Ont.—Roofing and tin-smithing contracts on the \$20,000 church, Weston Road and Sunnybrae Crescent, has been awarded to F. W. Kidd, 14 Goldwin Ave., and the plastering, heating and plumbing is to be let by the architect, J. F. Brown, King St. E., Toronto.

Ottawa.—The plumbing contract for the \$40,000 fire station, Parkdale and Wellington Sts., has been awarded to Garth Co., Jackson Bldg., and the heating contract to McKinley & Northwood, 54 Rideau St.

Outremont, P.Q.—The plumbing and heating contracts on the \$20,000 hall being built by the Outremont Presbyterian Church have been awarded to A. M. Hayes, 1219 Green Ave.

Selkirk, Man.—The roofing and sheet metal work on the \$27,835 power house being built for the Hospital for Mental Diseases has been let to the Western Steel Products, Ltd., Winnipeg, and the plumbing and heating work to Forbes & Christie, Winnipeg.

Fort William.—The plumbing and heating contracts for \$75,000 store and office building have been awarded to Superior Heating & Plumbing Co.

Hamilton.—The plumbing contract on the Lister Building has been awarded to Wm. Newell, 153 St. James St. S. and the heating contract to the Drake Avery Co.

Toronto.—The plumbing contract in connection with dye house and factory for the Toronto Carpet Mfg. Co. has been let to McNaughton & Mackenzie, 1029 Shaw St.

Montreal.—The plumbing and heating contracts on the \$90,000 apartment house being erected on Atwater Ave. have been awarded to Conroy Bros., and the roofing contract to the Dominion Sheet Metal Works.

Montreal.—The plumbing and heating contracts on \$40,000 residence being erected on Ontario St. for W. D. Hutchins, 79 Lagauchetiere St., have been awarded to J. Colford, 479 Guy St.

Montreal.—Owen Roberts, 6967 Sherbrooke St. W., is the owner and builder of 17 semi-detached residences costing \$140,000. The plumbing contract has

been awarded to Jas. Robertson & Co., and the heating contract to the Imperial Radiator Co.

Ottawa.—The plumbing and heating contracts on \$9,000 residence being built on Central Terrace have been awarded to Murphy and Morrow.

Ottawa.—William Bros. have the plumbing contract and the Pease Foundry Co. the heating contract on 5 residences, \$5,000 each, being erected on Renfrew Ave. by Cowie & Moore, 414 Sunnyside Ave.

Toronto.—The plumbing contract on two stores and apartments, \$12,000 each, being built on the north side of Gerrard East., near Highland Ave., has been awarded to J. C. Clayton, 176 Malvern Ave., and the heating contract to T. Eaton Co.

Toronto.—Wm. Pugh, Don Mills Road, is the owner and builder of 4 residences, \$4,000, Dawes Road and Coleman Ave. The plumbing and heating contracts have been awarded to A. Lyford, 11 Wiley Ave., and J. T. Bowes, 1276 Danforth Ave.

Toronto.—R. J. Ritchie, 851 Logan Ave., has been awarded the plumbing contract and Mason & Allen the heating contract on three pair of residences, \$6,000 a pair, being erected on the west side of Woodfield Road near Applegrove. The same contractors have the work on a pair of residences, \$4,500 each, on Woodfield Road near Queen East.

Toronto.—J. Fraser, 802 Danforth Ave., has the plumbing contract for two pair of residences being built at \$7,000 a pair on Jones Ave. by Geo. Lankin, 43 Thornecliffe Ave.

Toronto.—The contract for heating and plumbing in connection with \$9,500 duplex residence at 742 Coxwell Ave., has been awarded to Geo. Copperthwaite, 118 Langford Ave. He also has heating and plumbing contracts on \$9,000 duplex at 744 Coxwell Ave.

Toronto.—W. Adams, 103 East Lynn, has the plumbing contract and Pollitt & Dilks, 16 Cedarvale Ave., the heating contract on two pair of residences, \$7,000 each, on Coxwell, below Danforth.

Toronto.—W. J. Merrill, 866 Kingston Road, has the heating contract and W. Adams, 103 East Lynn, the plumbing contract in connection with a pair of residences, \$7,500 each, on west side of Coxwell, below Danforth.

Vancouver.—W. A. Brown, Ltd., have the plumbing contract on \$550,000 apartment block, Georgia and Hornby Sts.

Westmount, P. Q.—M. Archambault, 1921 St. Catherine St., has the roofing and heating contracts on \$10,000 residence being built on Delorimier Ave. for Dr. Choquette, 1063 Delorimier Ave.

Ottawa.—The Garth Co. have the plumbing and heating contracts on the

\$60,000 addition to L. N. Paulin's store, O'Connor St.

Montreal.—O. Caron, 464 LaSalle, Maisonneuve, has been awarded the plumbing and heating contract for presbytery to be built at Dorion St.

Ottawa.—The heating and plumbing work on the \$18,000 addition to Murray St. school has been awarded to Gauthier & Co.

Sydney, N. S.—Hagen & Co., 542 George St., have been awarded the contracts for the heating and plumbing in the \$35,000 community hall being built for the Methodist and Presbyterian churches.

Timmins, Ont.—A. Brazeau has been awarded the plumbing, heating and ventilating contracts on the new \$80,000 high school here.

Ridgeway, Ont.—John W. Danforth, Ellicott Square, Buffalo, N. Y., has been awarded the plumbing and heating contracts on the \$67,000 club house for the Cherry Hill Club.

Simcoe, Ont.—Davidson & McInnis, Woodstock, have the sheet metal, heating and plumbing contracts on the \$25,000 addition to the plant of the City Dairy Co.

Toronto.—W. H. Booth, 365 Dovercourt Road, has the plumbing contract and Joseph Harrison, Toronto, the heating contract on the \$30,000 addition to manufacturing plant at 26 Noble St.

Windsor.—J. S. Seiber, London St., has the plumbing and heating contracts for three stores being built on Oulette Ave., at a cost of \$12,000 for A. Little, Pitt St.

Hamilton.—A. E. Fletcher, 267 Prospect St., has the plumbing and heating contracts for two residences costing \$10,000, Ottawa and Maple Aves.

London.—E. G. DePatie has the plumbing and heating contracts on \$15,000 stores and apartments being built at Wharnccliffe Road and Elmwood Ave.

Montreal.—J. A. Vaillancourt, 1301 St. Denis, has the roofing and plumbing contracts on \$12,000 residence near 1062 St. Denis.

Ottawa.—The heating and plumbing contracts for \$17,000 apartments being built at Clarence and Cobourg Sts. have been awarded to M. Archambault, Hull, P. Q.

St. Lambert, P. Q.—R. J. Williams, 13 Prince Arthur St., has the contract for plumbing and heating in connection with \$8,800 residence being built on Pine St. for Modern Housing Co.

Sandwich, Ont.—J. Seiber, London St., Windsor, has the plumbing and heating contract for \$12,000 residence being built on Partington Ave. for F. Prince, Windsor, also on \$14,000 duplex being built on same street for same owner.

Sydney, N. S.—Hagen & Co., 452 George St., have the plumbing and heating contract on \$12,000 residence being built on Kingston Road for M. A. Doak.

Montreal.—W. G. Bailey, 145 Bleury St., has the plumbing and heating contracts for \$20,000 residence on Courte, between Fort and Chomedey Sts.

Tenders Wanted

Almaville, P. Q.—Plumbing and heating tenders are being received by Jules Caron, architect, 21 St. Joseph St., Three Rivers, P. Q., on \$60,000 R. C. church being built here.

Tillsonburg, Ont.—Tillson Co. are open for suggestions and prices in connection with a \$15,000 steam heating system to be installed this fall. Plans and specifications with E. V. Tillson, Tillsonburg.

Montreal.—Plumbing, heating and roofing contracts are still to be let on \$25,000 store on Park Ave., near Bernard; F. H. Byrne, 2438 Park Ave., owner and general contractor.

Windsor.—Plumbing and heating contracts are still open on \$30,000 manufacturing plant to be erected on McDougal Ave. W. H. Willmot, 1044 Pelissier St., has the general contract.

Ottawa.—Tenders are being received by the owner, Wm. Joynt, Laurentian View, near Ottawa, on heating and plumbing for \$25,000 apartment house to be built at Wellington and Holland Aves.

Montreal.—Roofing, plumbing and heating contracts are still to be let on the \$18,000 garage being built by Senecal & Theoret, 288 Boyer.

Toronto.—Tenders are being received by the Toronto Carpet Mfg. Co., 1179 King St. W., on roofing, plumbing and tinsmithing for new dye house and manufacturing building.

Brantford, Ont.—W. A. T. Shorman, c/o British American Oil Co., is receiving tenders for the heating of the \$15,000 warehouse, office and garage being built by that firm on Burford Rd.

Montreal.—Roofing, plumbing and heating contracts are still to be let on the \$18,000 addition to garage by N. Fortier at 3099 Notre Dame E.

Regina.—The plumbing and heating contracts for \$13,000 addition to store on Tenth St. for Fuhrman & Co. are still to be let.

Vancouver.—J. V. & G. E. Lighthouse, Point Grey, B. C., are the owners and builders of \$50,000 apartment block, Spruce St. and 10th Ave. Roofing,

Mount Royal, P. Q.—Bremner Norris & Co. 65 McGill College Ave., have the general contract for four residences costing \$32,000 for the Model City Housing Co., Montreal. Roofing, plumbing, heating and tiling contracts still to be let.

Montreal.—A. K. Hutchinson, 10 Cathcart St., has the general contract for \$15,000 repairs to residence of A. Colville, 595 Pine Ave. Roofing, plumbing and heating contracts are still to be let.

Obituary

St. Lazare de Vaudreuil, P. Q.—Leon Lauzon, who had conducted a tinsmithing business here for a number of years, passed away recently.

THE MELTING POT



The traveling salesman had four minutes in which to catch his train.

"Can't you go faster than this?" he asked the street car conductor.

"Yes," the bell ringer answered, "but I have to stay with my car."

"To what do you attribute your long life, Uncle Mose?" asked a newspaper interviewer of a colored centenarian.

"Becuz Ah was bo'n a long time back," the old gentleman replied.

Gratitude is knowing how to pay a kindness in more than one way. A hungry and cold wanderlust of the road was fed and warmed in a minister's kitchen. When he rose to go, he said, "Parson, I can't give you any money, but I know how to fix your gas meter so it won't register."

Just before the conclusion of the weekly prayer meeting in a country town one evening the parson arose and glanced over the congregation.

"Is there anybody present," said he, "who wishes the prayers of the congregation for a relative or friend?"

"Yes, parson," answered a tall, angular woman rising to her feet. "I want the congregation to pray for my husband."

"Why, Sister Martha," exclaimed the parson with a surprised expression, "you have no husband!"

"I know I haven't," was the calm rejoinder of Sister Martha, "I want all hands to pitch in and help me pray for one."

"When I was ship-wrecked on the coast of South Ameriky," said the old sea captain. "We came across a race of wild women who had no tongues."

"Good gracious! How did they manage to talk?"

"They couldn't. That's what made 'em wild."

Visitor—"There's no soup on the menu."
Waiter—"No, sir; I just dried it off."

Perfectly well meaning old lady: "Thank you so much for your song, my dear. It took me back to my childhood days on my father's farm and when I shut my eyes and listened to your singing I seemed to hear the dear old gate creaking in the wind."

One day in a club on Cordova St., Vancouver, two old lumberjacks, after many years' separation, were about to crook their elbows, when one remarked to the other: "Yust you work at Rock Bay?"

"I yust. Yust you?"

"I yust. I thought you yust."

ONE ON A POLICEMAN

The witness had just been severely reprimanded by the court for having called the officer a jackass.

"You mean to say that it is a misdemeanor to call a policeman a jackass?" asked the witness.

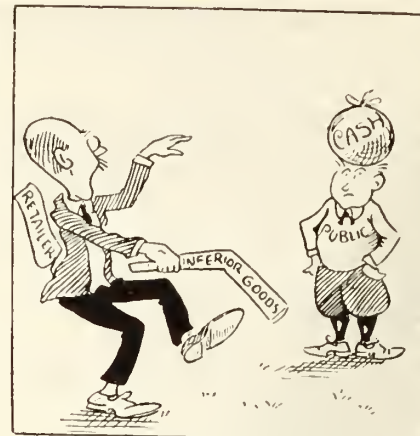
"It certainly it," was the answer.

"Is it any harm to call a jackass a policeman?" queried the witness again.

"None whatever," smiled the judge.

As the witness left, he turned and said to the policeman: "Good-bye, policeman!"

The Boomerang Always Returns



Sanitary Engineers' Social Club is Organized in Hamilton

Inaugural Meeting of New Organization of Hamilton Plumbers Designed to Further Educational and Social Intercourse—C. F. Rogers is Elected President

AT A largely attended meeting of the Craft of Hamilton and vicinity there was launched a unique organization to be known as the Sanitary Engineers' Social Club.

During last winter the Hamilton Craft, without any particular organization, carried out a series of evening dinners, the wonderful success of which has already been described in Sanitary Engineer.

This year, it was decided to elaborate somewhat the original plans, and for this purpose it was thought best to form some regular organization to carry on this work. A most representative meeting was held when all branches of the trade including manufacturers, jobbers, masters and journeymen were present.

After an excellent dinner, interspersed with musical selections, in the Arcade Dining Room, Hamilton, the meeting was called to order by Gordon Stewart, president of the Ontario Society D. S. & H. E., acting chairman. After he and Mr. Charles F. Rogers, Hamilton manager of the Standard Sanitary Mfg. Co., had briefly outlined what had been accomplished last year and what they hoped to see carried out this winter, the regular organization of the Sanitary Engineers' Social Club was enthusiastically decided on.

The following officers were elected:

President—Charles F. Rogers.

Vice-President—Walter Brittain.

Secretary—Frank Lang.

Treasurer—William Malloy.

Executive Committee: W. A. Canning, Edwin Parkyn, F. R. MacDonald, Jas. Harrower, Stewart Clark.

and one member whom Local Union No. 67 Journeymen, were asked to appoint to represent them. Mr. Hal Rogers was unanimously elected Chairman of the Entertainment Committee.

It was decided to centre all of the various activities of the trade in Hamilton, in the club, and strong committees were appointed to organize bowling and baseball leagues.

Following this, the president-elect outlined a few of the good things he has already planned for a series of ten dinners this winter, which include talks from some very well known manufacturers, financial men, and others. Mr. Rogers expects to announce the complete programme shortly.

After the business of the meeting had been completed, Major L. L. Anthes, president of the Anthes Foundry Co., Toronto, and also president of the Toronto club, recently organized along similar lines, gave a brief but interesting and helpful talk on the value of co-operation. Major Anthes was accompanied by quite a delegation from the Toronto Club, including Roy Belyea, Harry Weinraub, H. W. Rushby,

K. B. Allison, Capt. Wotherspoon, John Birchard, Hugh Wallace and others, including representatives of the trade press.

The Hamilton Craft are certainly to be congratulated on the very live organization they have. A very fine spirit of camaraderie prevailed as was plainly shown by one little incident. It was brought to the attention of the meeting that a fellow craftsman, W. A. Owens, of Jarvis, had recently met with a very severe accident, while engaged at his work, which would confine him to his home for many weeks.

S. E. S. DINNER SCHEDULE

The Sanitary Engineers' Social Club of Hamilton, the account of whose first gathering of the season will be found elsewhere on this page, have arranged an interesting program of dinner meetings for the coming months, to which they are extending a cordial invitation to anyone connected with the plumbing industry. The dates of the dinners, which are held in the Arcade Dining Hall from 6.15 to 8 p.m., are as follows:—November 7, November 21, December 5, December 19, January 16, February 13, March 12, March 26, April 9, April 23.



C. F. ROGERS

Hamilton manager, Standard Sanitary Mfg. Co., who was elected President of the Sanitary Engineers' Social Club of that city for the season.

He had some partly completed contracts, furnace installations, etc., which were worrying him.

Before the meeting was over, it was arranged that this work would be all taken care of for Mr. Owens.

It is hoped and fully expected that this Sanitary Engineer Club idea will spread.

Issue Sanitation Bulletin

Moose Jaw, Sask.—The Hon. J. M. Uhrich, Minister of Public Health, has drawn attention to the Sanitations bulletin recently issued by R. H. Murray, Provincial Director of Sanitation, in which much good advice is given to those living in rural districts, who have modern plumbing installations in their home, connected with a private sewage disposal system in the vicinity of the house. The advice deals with proper care of the systems in the fall.

Investigate Central Heating Plants

Ottawa.—Hon. Charles Stewart, Minister of the Interior and Mines, has announced that F. A. Combe, Montreal steam and combustion engineer, has been engaged to make an exhaustive report on the feasibility of establishing central heating plants in Canada. This is in accordance with the policy of the Dominion Government to devote its efforts to a permanent solution of the fuel problem.

Appoint Water Superintendent

New Westminster, B. C.—The City Council has appointed F. H. Hardman as water superintendent, the appointment being made temporary, permanent appointment depending upon the successful administration of the department.

Unusual Activity Noted in Kingston During Present Fall

KINGSTON, Ont.—There is unusual activity in the plumbing and heating business. While the large firms have been pretty well occupied all summer, the approach of winter has caused a rush of orders and every available plumber is busy. The manufacturers of hot water radiators are reported to be behind their output and local demands cannot be filled promptly. The annual overhauling and renewal of heating systems is the cause of the unusual activity at the present time, rather than an increase in building during the summer.

Will Erect New Plant

Owen Sound, Ont.—Following the visit to this city of the divisional manager of the Canadian Oil Co., it was learned that anticipated improvements to the local plant would not be made, it now being the company's intention to erect a new plant here, beginning construction early next spring.

Market Conditions and Tendencies

Price Trend on Sanitary and Heating Supplies

Markets at a Glance

THE new Sales Tax regulations, which have been announced, and the particulars of which appear in this issue, in which it is mentioned that the Sales Tax is not to be shown separately on the invoice, will likely bring forth many price changes between now and the end of the year. All lines of stoves, stove repairs, and heating goods are undergoing active sale in various centres; these lines are moving noticeably better with the advent of colder and more seasonable weather, than was the case during the warmer fall days prior to two weeks ago. Considerable price cutting is in evi-

dence at the present time on nearly all lines of iron and steel sheets as well as on steel and iron bars, flats and shapes. Substantial cuts under regular prices are quoted on many of these lines, upon the appearance of orders of any appreciable size. Pig iron still continues to weaken, and the price has been reduced to \$30.30 per ton. Low prices on this metal have enabled it to compete with American iron in Michigan almost as far west as Chicago. Lead ingots are stronger and copper ingots have continued to weaken in basic markets.

Montreal Markets

MONTREAL, Oct. 30.—Local dealers and jobbers report that business has been very active during the past week in all seasonable lines, with a noticeable activity in all lines of heating equipment.

Higher prices are now effective on galvanized sheets and dealers are of the opinion that still higher prices will be seen. Black sheets are slightly easier this week. The scrap materials market is reported by dealers to be very quiet with prices at extremely low levels.

The ingot metal market is somewhat irregular in tone this week, the chief feature being the strength of lead and the continued weakness in copper. Other metals show little change since last week.

ENAMELED WARE SELLING IN GOOD VOLUME

Montreal.

Prices are steady on enameled ware following the recent decline. Sales in this line are reported to be of quite a satisfactory nature at the present time. Current prices are given herewith:

ENAMELLED WARE—

Sinks, flat rim—	1 only	2 only	3 only
16 x 24	\$ 7 50	\$ 7 40	\$ 7 30
18 x 30	8 70	8 60	8 50
20 x 30	9 90	9 80	9 70
Bath tubs, roll rim, 4, 4½, 5 feet, 24 to 30 in. wide			51 40
Bath tubs, 5½ feet,			57 10

Lavatories—

17x19 in. Apron F139 or P4045.....	15 30
18x24 in. Apron F154 or P3845 or P3847	23 60
18x21 in. Apron F169 or P4205.....	17 60
17x19 in. Roll rim. F241 or P4345.....	12 60
Less 35 per cent.	

GOOD SALES IN METAL LATH; PRICES ARE STEADY

Montreal.

Sales in metal lath are reported by dealers as being quite good at present. Prices remain steady and are being quoted as follows:

METAL LATH—	per sq. yd.
Painted—	
26 gauge	23c.
24 gauge	25c.
32 gauge	32c.
Galvanized, 5c. per sq. yd. extra.	

COTTON WASTE PRICES REMAIN STEADY

Montreal.

A stronger tone is noted in cotton waste locally, although as yet no change in price has occurred. Any movement, if made, is expected to be in an upward direction.

Prices in effect locally are as follows:

COTTON WASTES—

	Per lb.
Cream polishing	0 24
White, XXX extra	0 20
White, XX grand	0 18½
White, XLCR	0 17
X Empire	0 15½
X Press	0 14

Colored—

Fancy	0 15½
Lion	0 14
Standard	0 12½
Popular	0 10½
Keen	0 08½

Wool Packing—

Arrow	0 25
Axle	0 21
Anvil	0 17

Dominion Wipers—

White cotton	0 18
Colored cotton	0 14

EAVESTROUGH AND CONDUCTOR PIPE SELLING SEASONABLY

Montreal.

Dealers in eavestrough and conductor pipe report that sales during the past week have been showing up well. Prices

remain unchanged and are in effect as follows:

EAVESTROUGH—

O. G. round and half round, per 100 ft. 3 in., \$16.90; 10 in., \$18.70; 12 in., \$22.20; 15 in., \$35.50; 18 in., \$45.00.
O. G. Square bead, per 100 ft.: 8 in., \$15.90; 10 in., \$17.70; 12 in., \$21.20; 15 in., \$34.50; 18 in., \$44.00.

Discount 65 and 5 per cent.

CONDUCTOR PIPE—Round, Plain and Corrugated, per 100 ft.: 2 in., \$18.40; 3 in., \$22.30; 4 in., \$29.60; 5 in., \$48.00; 6 in., \$58.80.

Discount 65 and 5 per cent.

CONDUCTOR ELBOWS—

Plain or corrugated, price per doz. 2 in., \$5.25; 3 in., \$6.00; 4 in., \$10.50; 5 in., \$24.00; 6 in., \$29.00.

Discount 50 and 10 per cent.

RANGE BOILERS FIRM AT PRESENT LEVELS

Montreal.

Prices on range boilers are firm at levels established some short time ago. List and discounts prevailing locally are given herewith:

RANGE BOILERS—

5 Gallon	\$13 50
12 "	14 00
18 "	15 00
25 "	16 50
30 "	special 9 50 net
35 "	20 50
40 "	22 75
52 "	38 00
66 "	60 75
82 "	74 00
100 "	103 00
120 "	117 00
144 "	164 00
168 "	187 00
192 "	210 00

Discount Standard, 45 per cent.; Extra heavy, 40 per cent.

CORRUGATED SHEETS SELLING QUITE SEASONABLY

Montreal.

Corrugated sheets are reported by dealers to be selling quite seasonably. Prices are steady and are in effect locally as follows:

CORRUGATED SHEETS—	Per 100 sq. ft.
No. 28 gauge	7 00
No. 26 gauge	7 50
No. 24 gauge	10 00
No. 22 gauge	12 50
No. 20 gauge	14 00
No. 18 gauge	19 00
Less 10 per cent.	
Lighter than 24 gauge and wider than 27 ins., 75 cents per square extra.	

TRADING IN CLOSET GOODS FAIRLY ACTIVE

Montreal.

Dealers report that trading in closet goods is fairly active at the present time. Prices are unchanged and are given herewith:

CLOSET COMBINATIONS—

Low Down Outfits,	each
Closet, standard outfit, oak.....	24 00
Do., post hinge seat	24 50
Do., oak vitro or Pussyfoot	24 00
Do., post hinge seat.....	24 50
Do., mahogany vitro or Pussyfoot, post hinge seat and cover	27 00
Do., vitreous china, oak post hinge seat and cover	29 00
Do., vitreous china, mahogany post hinge seat and cover	29 50
Do., white vitro or Pussyfoot, mahogany post hinge seat and cover	30 00
Do., enamelled iron tank, oak post hinge seat and cover	28 75
Do., enamelled iron tank, mahogany post hinge seat and cover.....	29 00
Add for 3/4" valve on supply pipe	1 25
Add for spud	0 60
Add for reverse trap bowl.....	1 50
Add for syphon jet bowl	7 00
Deduct for supply pipe	0 80
Deduct for floor hinge.....	0 60
Richelieu bowl	8 00
Washdown bowl with spud.....	9 90
Reverse trap bowl with spud.....	9 90
Syphon jet bowl with spud.....	15 40

CLOSET SEATS—

Oak post hinge seat and cover	3 85
Oak wood strip seat and cover.....	3 50
Mahogany finish post hinge seat and cover	4 05

CLOSET TANKS—

Low down, oak vitro or Pussyfoot with fittings less seat	12 50
White vitro or Pussyfoot with fittings, flush elbow and supply	16 50
Vitreous china tank with fittings, flush elbow and supply	16 00
Enamelled iron with fittings, flush elbow and supply	18 90

PRICES ON GALVANIZED SHEETS SLIGHTLY FIRMER

Montreal.

Prices on galvanized sheets are slightly higher, and the opinion prevails that it is not unlikely that prices will again advance in the very near future. Existing prices are given herewith:

BLACK SHEETS—

10 gauge base	4 25	4 50
12 gauge	4 35	4 50
14 gauge	4 45	4 60
16 gauge	5 05	5 15
18—20 gauge	5 20	5 25
22—24 gauge	5 20	5 35
26 gauge	5 25	5 40
28 gauge	5 35	5 60

GALVANIZED SHEETS

	Queen's Head	Fleur de Lis
18-20 gauge	6 90 7 40	6 90 7 15
22 gauge	7 15 7 65	7 15 7 40
24 gauge	7 25 7 75	7 20 7 45
26 gauge	7 50 8 00	7 50 7 75
28 gauge	7 75 8 25	7 75 8 00

Other Brands—

10 3/4 oz.	7 75	8 00
28 U. S. gauge	7 25	7 50
26 U. S. gauge	6 85	7 10
24-22 gauge	6 65	6 90
20-18 gauge	6 45	6 70
16 gauge	6 25	6 50

Above prices are for 1/2 ton lots in English iron and 1000 lb. lots in American iron with an extra charge of 25c for less quantities. Extra for sheets 3 ft. wide 28 gauge and 10 3/4 oz. 25c per 100 lbs.

Further extra for sheets 4 ft. wide according to gauge.

TIN PLATE—

20 x 28 x 100 lbs. basis	15 50
20 x 28 IC, 112s	16 00
20 x 28 IC, 112s	18 00
20 x 28 IXX, 56s	11 00
20 x 28 IXX, 56s	12 00

TERNE PLATE—

20 x 28 IC, 112s, 200 lbs.	14 50
20 x 28 IC, 112s, 214 lbs.	15 00

CANADA PLATE—

Half bright, 60s	6 00
Half bright, 52s	5 90
Blued 52s	5 90
Blued 60s	6 00

Copper Imports From Britain Rapidly Increasing

THE United Kingdom has made good progress during the past two years in increasing their exports of manufactured and partially manufactured products of copper to Canada. The rate of increase noted in connection with these imports of copper products from Britain, as compared with those of the United States, shows the United Kingdom to be gaining ground to a remarkable degree.

Two or three years ago, very little material of this kind was shipped into Canada from England, any importing of these products being done from the United States.

British manufacturers have, however, worked into this market and are rapidly coming to the top, according to the reports of the Dominion Bureau of Statistics.

For four months ending July in 1921, 40,360 cwt. of copper bars and rods were imported by telephone wire and cable companies as against 123,002

cwt. for the corresponding months in 1923.

The imports of copper strip, sheets and plates for four months of 1921 ending July, were 15 cwt., and for the same period in 1923 they were 3,117 cwt.; on these goods, and for the same periods, the imports from the United States were in 1921, 99,163 cwt., and in 1923 they were 125,266 cwt.

These figures will show that while the imports from the United States increased 25 per cent., the increase in proportion from the United Kingdom was much more.

The total imports on all kinds of copper products from Britain for four months ending July, in 1921, were 17,042 cwt., as against 121,968 cwt. in 1923, showing an increase in the two years of over 700 per cent., while the imports from the United States on all lines of copper for this period of 1921 were 951,575 cwt. as against 3,195,716 cwt., showing an increase of about 330 per cent.

COMPRESSION GOODS SELLING WELL AT PRESENT

Montreal.

Dealers report that compression goods are selling well at present. Prices remain steady and are in effect locally as follows:

VALVES AND BIBBS—

Compression work, standard.....	48%
Fuller work, standard	30%
Quick opening, compression bibbs.....	45%
Bath cocks, quick opening.....	53%
Bath cocks, compression	45%
Basin cocks, quick opening.....	50%
Flatway stop and waste cocks, std....	56%
Roundway stop and waste cocks, std....	42%
Brass steam cocks, standard, 1/4 in....	25%
Radiator valves, standard	55/25%
Do., removable discs	55/25%
Globe, angle and check valves, std....	25%
Gate or straightway	25%
Emco globe valves	33%
Emco check valves	33%
Jenkins globe, angle, check and swing check	plus 15%
Jenkins gate or straightway	plus 11%
Jenkins iron body, globe and angle.....	plus 10%
Jenkins iron body, gate.....	12%
N. P. "O" and "S" traps.....	34%

SALES IN PIPE FITTINGS SHOW UP WELL

Montreal.

Good sales in pipe fittings are reported by dealers during the past two weeks. Discounts remain unchanged and are in effect locally as follows:

PIPE FITTINGS—

Cast iron fittings	10%
Plugs, cast iron	10%
Do., solid	10%
Do., countersunk	10+
Bushings, cast	15%
Do., malleable	15+
Unions	30%
Flanged unions	10%
Flanged fittings	27 1/2%
Dart unions, black, 1/2 to 2 in.....	27 1/2%
Do., 1/2 in., 2 1/2 in., and larger.....	10 and 10%
Do., galv. add to black.....	27 1/2%
Nipples, 1/2 to 4", close and short.....	45%
Do., long	50%
Do., 4 1/2 to 8", close and short.....	35%
Do., long	40%
Couplings, 4" and under	25%
Do., 4 1/2" and larger	5%
Malleable Fittings—	
Price list effective June 1st, 1922. Discount	63 per cent.

RADIATORS AND BOILERS SELLING WELL AT PRESENT

Montreal.

Dealers in radiators and boilers report that business in this line is showing up exceptionally well at present, and that prospects for a good volume of trade this fall are very bright. Prices show no change and are in effect locally as follows:

RADIATORS AND BOILERS—

Radiator list prices are for 1, 2, 3, 4 and 5 column radiators, per sq. ft.

45 in. to 38 in., \$1; 32 in., \$1.10; 30 in., \$1.15; 26 in., \$1.20; 23 in., \$1.26; 22 in., \$1.30; 20 in., \$1.36; 18 in., \$1.40; 16 in., \$1.50; 14 in., \$1.55; 13 in., \$1.60. Discount 44 per cent for hot water, and 45 per cent. for steam.

Wall radiators—5 ft., \$1.15; 6 ft., \$1.10; 7 ft., \$1.05; 9 ft., \$1.05; 12 ft., \$1.05; Discount 41 per cent.

Boilers—Round hot water boilers, sizes from 0 to 10, 52 per cent. off list. Square or sectional hot water or steam boilers, 15 in., 3 per cent. with Ontario Government trimmings, list. Square or sectional water boilers, 19 in. to 36 in., 9 per cent. Square or sectional steam boilers, 19 in. to 26 in., 8 per cent. Ontario Government trimmings, list plus 7 per cent. Square or sectional water or steam boilers, 48 in., list plus 10 per cent. With Ontario Government trimmings, list plus 18 per cent.

Round steam boilers, standard trimmings, 16 per cent. Ontario Government trimmings, 13 per cent.

F.o.b. Montreal, Toronto, Guelph.

SOIL PIPE PRICES FIRM AT FORMER LEVELS

Montreal.

A good volume of business on soil pipe is reported by dealers during the past two weeks. Discounts remain unchanged and are in effect locally as follows:

SOIL PIPE—

2 and 3 inch.....	20%
4 inch	25%
5 and 6 inch	20%
8 inch	net

FITTINGS—

2 to 6 inch	37 1/2%
8 inch	net

PRICES ON WROUGHT PIPE REMAIN STEADY

Montreal.

Prices on lapweld and butt weld pipe remain steady. Sales are said to be fairly good at present, and prices are still based on list No. 59, which was issued some time ago.

WROUGHT PIPE

Price List No. 59. April 24th, 1923.
Standard Butt weld Pipe S/C per 100 feet.

Size	Blk.	Steel	Galv.	Wrot.	Iron
1/4 in.	6.00	8.00	7.56	9.60	
1/2 in.	4.32	6.30	7.56	9.60	
3/4 in.	4.32	6.30	7.56	9.60	
1 in.	5.53	6.97	7.82	9.85	
1 1/4 in.	6.79	8.40	9.55	11.27	
1 1/2 in.	9.69	12.07	13.77	16.32	
2 in.	13.11	16.33	18.63	22.08	
2 1/2 in.	15.68	19.53	22.28	26.40	
3 in.	21.09	26.27	29.97	35.52	
3 1/2 in.	33.35	41.54			
4 in.	43.61	54.32			
4 1/2 in.	56.12	69.00			
5 in.	66.49	81.75			

Standard Lapweld Pipe S/C per 100 ft.

Size	Blk.	Steel	Galv.	Wrot.	Iron
2 in.	24.42	29.60	33.30	38.85	
2 1/2 in.	36.27	44.46	50.31	59.09	
3 in.	47.43	58.14	65.79	77.27	
3 1/2 in.	57.04	69.92	79.12	92.92	
4 in.	67.58	82.84	93.74	110.09	
4 1/2 in.	78.74	96.52	1.14	1.33	
5 in.	91.76	112.48	1.33	1.55	
6 in.	1.19	1.46	1.73	2.02	
7 in.	1.55	1.90	2.21	2.62	
8 in.	1.63	2.00	2.33	2.76	
8 1/2 in.	1.87	2.30	2.68	3.17	
9 in.	2.23	2.83			
10 in.	2.14	2.52	3.04	3.58	
10 1/2 in.	2.76	3.38	3.91	4.01	

SLIGHTLY HIGHER PRICES ON SOME LINES OF STEEL

Montreal.

Slightly higher prices are now in effect on some lines of steel. Dealers report that the iron and steel market is now somewhat more settled and more favorable business is expected in the very near future. A revised list of base prices is given herewith:

IRON AND STEEL—

Common bar iron, 100 lbs.	3 95
Iron finish machinery steel	4 00
Mild steel	3 95
Single reeled machinery steel	5 50
Band steel	3 95
Sleighshoe steel	3 95
Spring steel	5 25
Tire steel	4 15
Harrow tooth steel	4 15
Toe caulk steel	5 25
Mining tool steel, per lb.	0 19
Black Diamond tool and cast steel, per lb.	0 19

LEAD AND ZINC GOODS REMAIN STEADY

Montreal.

Lead and zinc goods are reported by dealers to be selling in fairly good volume. Prices remain steady and are the same as issued two weeks ago.

LEAD AND ZINC PRODUCTS—

Lead pipe, per 100 lbs., up to 2 in.	14 50
Do., 2 in. to 8 in.	15 50
Do., 8 in. and over.	16 50
Lead waste per 100 lbs.	15 50
Lead wool, lb.	0 13
Lead sheets, 2 1/2 lbs., sq. ft. lb.	\$ 10 1/2
Lead sheets, 3 to 3 1/2 lbs., sq. ft. lb.	0 10
Do., 4 to 8 lbs., sq. ft. lb.	0 09 1/2
Cut sheets, 3/4 c. lb. extra and cut sheets to size 1 c. lb. extra.	
Solder, wiping, lb.	0 24 1/2
Solder, commercial, lb.	0 25
Solder, strictly, lb.	0 27
Solder, guaranteed, lb.	0 29
Solder wire, lb.	0 39
Zinc sheets, casks	0 11
Do., broken lots	0 12

SCRAP MATERIALS SELLING VERY SLOWLY

Montreal.

Dealers in scrap materials report that the market is very quiet at present and little business is being done in any line. Prices on yellow brass, red brass, and light copper are slightly lower. Average buying prices are as follows:

SCRAP—

Automobile Tires	0 50
Rubber Shoes	0 02
Yellow brass	0 06
Red brass	0 08
Light brass	0 04 1/2
Scrap zinc	0 05
Lead, heavy	0 05
Lead, tea	0 03
Light copper	0 09
Heavy copper	0 11 1/2
Wrought iron, R. Rd. No. 1 per gr. ton	14 00
Malleable scrap (ton)	16 00
Pipe scrap (ton)	8 50
Heavy melting steel	9 50
No. 2 busheling	5 00
Boiler plate	12 00
No. 1 machinery cast	20 00

STRENGTH OF LEAD FEATURE OF METAL MARKET

Montreal.

The metal market is irregular in tone this week, the chief feature being the strength of lead and the continued weakness in copper. Other metals show little change since last week.

TIN.—This metal continues to hover around the £200 mark, and any attempts to knock prices down are promptly met by buying support in London. The situation appears to be a test of whether London can maintain prices until American consumers are forced to come into the market. At present there is little buying interest on the part of the U.S. A. The local market is steady at 48 cents per pound.

COPPER.—This metal is again slightly lower and evidently the bottom

is hardly yet in sight. Production has been curtailed very little as yet, and with consumption continuing to fall off, the statistical position does not improve. The low-cost mines are evidently determined to force matters to an issue, as they are still able to make a profit at present prices. Export demand is dull and the situation is not very cheerful from the point of view of producers. The local market is easy at 18 1/2 cents for electro and 18 cents for casting.

LEAD.—This metal has been in the spotlight this week owing to the sharp advances in London, and as prices here are based on the English market, they have advanced accordingly. There is evidently a temporary shortage and prices have been advanced as a result, but it would seem as though present levels are too high to last long. The local market is strong at 18 3/4 cents per pound.

ZINC.—Last week's advance, both in London and the U.S.A., was not of a permanent nature and prices have reacted to some extent. This is possibly only temporary, as zinc is in a fairly good position and at present levels does not show any profit to producers. The immediate future is somewhat obscure but there is not likely to be much change. The local market is steady at 9 1/4 cents per pound.

ANTIMONY.—There has been somewhat of a firm tone to the market this week, and as offerings from China are still rather scarce, there has been a slight premium paid for nearby lots. This has hardly affected prices here as the demand is light and the market quiet at 8 1/2 cents for English and 8 cents for Chinese.

Toronto Markets

TORONTO, Oct. 30.—The colder and more seasonable weather which is being experienced at the present time, has had quite a stimulating effect on all lines of heating and stove repair business of late, in local centres. Jobbers and dealers in plumbing and heating lines report that quite a seasonable amount of work has been done during the past two weeks, and that the volume of trade has been greater than that obtained during the milder weather which has been experienced this fall. There has been a decline in the price of some lines of Quatern brass goods. Pure copper and brass wire has declined, as also have soldering coppers. Pig iron prices are lower by \$1 per ton than they were two weeks ago, the present price for ordinary quantities being \$30.30 per ton. Candlewick has advanced in price to 69 cents per pound. Ingot lead and tin have both undergone an advance in price on a strong market while, on the other hand, copper still continues to weaken though local prices are unchanged.

DECLINE NOTED IN SOLDERING COPPER PRICES

Toronto.

Soldering coppers have declined in price to the extent of about three cents per pound. This decline is due to the weakness noticeable in connection with the copper market lately. The prices are: 4 to 8 lbs., per pair, 39 cents per lb.; 3 lbs., per pair, 40 cents per lb.; 2 1/2 lbs., per pair, 41 1/2 cents per lb.; 2 lbs., per

pair, 42 1/2 cents per lb.; 1 1/2 lbs., per pair, 46 1/2 cents per lb.; 1 lb. 50 1/2 cents per lb.

COTTON CANDLE WICK ADVANCES TO 69 CENTS

Toronto.

The price of cotton candle wick which has been 67 cents per lb. has advanced with all other lines of cotton goods and is now selling at 69 cents per lb.

Most men prefer shower-baths.
Give them what they want, and
make them happy!

The New MUELLER Tub Shower Faucet

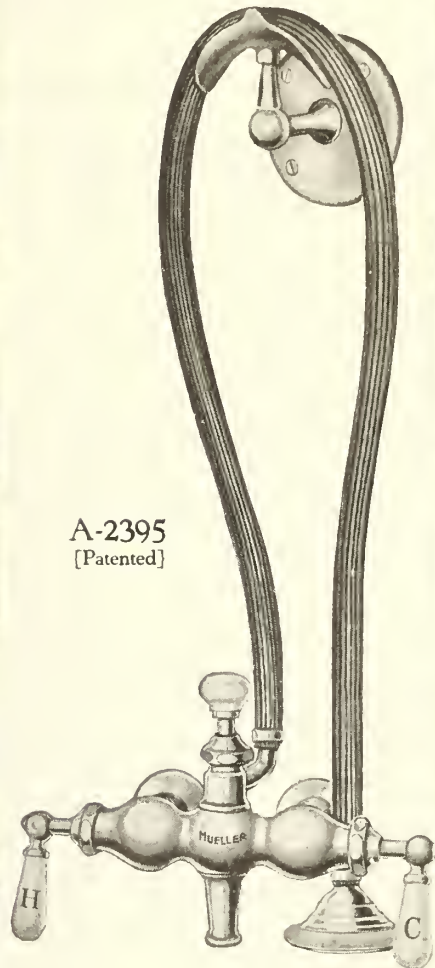
gives every plumber something to sell those who already have bath-rooms, as well as to those installing them.

It combines the features of the ordinary bath cock with the advantages of the modern shower-bath. The five-foot hose is permanently attached to the cock. Hot, cold or tempered water can be drawn either from spout or spray, as needed.

It will pay you to install A-2395 on a sample tub and display it in your show window and in your shop. It sells on sight and nets you a handsome profit.

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Water, Plumbing and Gas Brass Goods and Tools
Forgings in Brass and Bronze; Screw
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American Factory at Decatur, Ill., U.S.A.
Branches, New York, San Francisco and
Los Angeles, Cal.
Mueller Metals Co., Port Huron, Mich.
Makers of "Red Tip" Brass Rod; Brass
and Copper Tubing.



A-2395
[Patented]

PURE COPPER AND BRASS WIRE PRICES DECLINE

Toronto.

During the past two weeks two separate declines have taken place in the prices on pure copper and pure brass wire.

The first decline amounted to ½ cent per lb. on both the brass and the copper. The last decline amounted to 1 cent per lb. on pure brass wire and ½ cent per lb. on pure copper wire.

The base price on the brass is at present \$29.34 per cwt., and the base price on the copper is \$23.34 per cwt.

BRASS GOODS—

BATH COCKS (Compression)—	
N. P. brass handles or indexed No. 3825	3 78
No. 4 Std. Comp. Double Bath, No. 3829F	4 51
Ditto with China Index, No. 3830F	4 51
BATH COCKS (Quick Opening)—	
Brass handle on top, No. 3850 F	4 59
China handle on top, No. 3850 F	4 72
Quatern Top China Hdle. A. 3200	4 75
Brass handle on side, No. 3851F	4 95
(less Jewell's cup)	
China handle on side No. 3852 F	5 00
(less Jewell's cup)	
Quatern Side China Hdle. A3500	5 15
A2395 Mueller type Shower Faucet	9 25
¾ in. N. P. Brass Supply Pipes, pair	2 20
½ in. N. P. Brass Supply Pipes, pair	2 30
½ in. Galvanized Iron Nickle Plated Supply Pipes	2 05
Waste and overflows, 19 ga. 1½ in.	
T. B. L.	4 00
1¼ or 1½ Overflow and Waste 18 gauge,	
N. P. on rough	3 00
1" T.B.L. Overflow and Waste, 18 gauge,	
N. P. on the rough	4 00
Deep Seal Por. S. N. P. traps, no vent	3 55

LAVATORY FITTINGS

Riley Basin Cocks China Index, per pair	7 00
Riley Jr. Basin Cocks, China Index, per pair	6 00
Adanac Basin Cocks, Brass Handle, No. 3632, per pair	4 68
Adanac Basin Cocks, China Handle, No. 3635, per pair	5 20
Quatern Basin Cocks, side China hdle., A2000, per pair	5 00
Quick Opening Basin Cocks, Brass Hdle. No. 3630, per pair	3 70
Quick Opening Basin Cocks, China Handle, No. 3633, per pair	4 28
Quatern Basin Cocks, Top China Hdle. A1900, per pair	3 80
Fuller No. 0 Basin Cocks, Brass Handle, No. 3650, per pair	4 10
Fuller No. 0 Basin Cocks, China Handle No. 3651, per pair	5 04
Midget No. 0 Basin Cocks, No. Index, No. 3623 per pair	3 10
Midget No. 0 Basin Cocks, With Index, No. 3623, per pair	3 10
¾ in. N.P. Brass supplies to wall or floor	2 20
¾ in. Galvd. supplies N. P.	2 05
1¼ in. N.P.S. Traps to floor No Vent 20G No. 4458	3 46
1¼ in. N.P.S. Traps to floor with Vent 20G No. 4462	4 53
1¼ in. N.P.P. Traps, No Vent 20G No. 4450	2 74
1¼ in. N.P.P. Traps No Vent Toronto By-law No. 4450	2 97
1¼ in. N.P.S. Traps with Vent Toronto By-law No. 4462	4 98
1½ in. N.P.S. Traps with Vent Toronto By-law No. 4462	6 67
2 in. N.P.S. Traps with Vent Toronto By-law No. 4462	14 00
Patent Overflow basin plugs	0 71
Pop up waste	5 00
Unique waste China Knob	5 50
Unique waste China Index	5 00
1¼ in. Deep Seal Trap No Vent	3 75
1½ in. Deep Seal Trap No Vent	6 00
1¼ in. Elliptic Trap	6 50
1½ in. Elliptic Trap	9 00
Whirlpool N.P. Traps list prices less	15%

SOME BRASS GOODS PRICES REDUCED

Toronto

Some Quatern brass goods lines are lower in price than formerly quoted. Top china handle bath cock, No. A3200 which used to sell at \$4.98, now sells at \$4.75. Side china handle bath cock No. A3500, which used to sell at \$5.45, now

Production of English Sheets is Now at High Level

ENGLISH galvanized steel sheet mills are at the present time very busy. All mills are producing material in large volumes, and in this industry, unemployment is almost unheard of now. The condition in the Ruhr which exists at the present time, with many of the mills closed down and with the restriction of output in effect on those that are still running, as well as the difficulties in connection with exporting, without a doubt, is putting a lot of additional business in these lines through British mills, which probably would be placed through other sources of supply, under normal circumstances.

In England at the present time, keen competition exists in connection with orders from Japan and other Oriental countries. Great quantities of galvanized steel sheets are being shipped to the devastated areas of Japan for roofing and other purposes, where rapid construction is necessary.

With reference to the recent charges that poor quality galvanized sheets were being placed on the market from English mills, Sanitary Engineer has made inquiries regarding this matter, and it has been ascertained that while it is true that such imports were made into Canada, these sheets were represented as not first quality material, and were sold as such, at lower levels than regular first quality material.

Ordinarily, at this time of the year, Canadian importers of galvanized sheets have full warehouses, as advantage is taken of the cheaper freight rates prior to the close of navigation to Montreal, but owing to no settlement of the sales tax question having as yet been made, and as this is an important feature with importers of these lines, stocking up has been delayed until this question is settled definitely, when importers will know on what basis their costs are to be figured for the coming year.

sells at \$5.15. Quatern basin cocks, side china handle, No. A2000, which used to sell at \$5.20 per pair now sell at \$5 per pair. Quatern basin cocks, top china handle, No. A1900, which used to sell at \$4.28 per pair, now sell at \$3.80 per pair. All other lines of brass goods are selling at prices formerly published.

PRICES ON COMPRESSION GOODS FIRMLY MAINTAINED

Toronto.

No change has been made in the prices of compression goods, levels already in effect being maintained firmly.

Sales are reported to be good in these lines, both by jobbers and by dealers.

COMPRESSION GOODS—

Compression stops No. 3450 brass fin., ½ in. each	0 86
Compression stops, No. 3450, N.P., ½ in. each	1 01
Lavatory stops, No. 3466, N.P., ¾ in. ea.	1 21
Do., No. 3468, N.P., ¾ in. each	1 21
Compression stop and wastes, No. 3483 ½ in.	0 89
Compression stop and wastes, ¾ in.	1 29
Brass finished bibbs, ½ in., No. 3000, each	0 86
N.P. finished bibbs, ¼ in. No. 3000, ea.	1 01
Brass hose bibbs, ½ in. No. 3001, ea.	0 99
N.P. hose bibbs, ½ in. No. 3001, ea.	1 14
Loose flange bibbs, ½ in. N.P. No. 3208	1 43
Loose flange hose bibbs, N.P., ½ in. N. P. No. 3029	1 56
Compression Bibbs No.'s 3001-3041	.48% Off
Compression Bibbs No.'s 3053-3058	.43% Off
Compression Bibbs, No.'s 3084-3085	.49% Off
Quick Opening Comp. Bibbs, 3100-3115	.45% Off
Quick Opening Comp. Bibbs, 3116-3119	.45% Off
Quatern Q. O. Bibbs, A200, A1002	.45% Off
Ball or roller bearing, self-closing, 3338-3850	.40% Off
Stops also stop and waste cocks—	
Compression, 3450-3453	.48% Off
Compression, 3462-3463	.43% Off
Compression, 3466-3479	.45% Off
½ inch as 3483 listed at \$32.40 doz. less	67%
Urinal cocks, compression, 3500-3508	.25% Off
Sill and boiler drain cocks, 3560-3568	.50% Off
½ and ¾ list only used.	
Add 10c net for N. P. or finished.	
Boiler Drain cocks, No. 3571, net	0 72
Bath cocks, quick opening	53%
Bath cocks, compression, plain hdle.	45%
Bath cocks, compression, indexed hdles.	45%
Basin cocks, quick opening	50%
Basin cocks, compression	36%

GOOD SALES IN VALUES AT PRESENT LEVELS

Toronto

During the past two weeks sales have been good with dealers in most lines of valves and cocks.

Prices are unchanged from former levels. The discounts in effect at the present time are given herewith:

VALVES AND COCKS—

Radiator valves, std.	.62 & 20%
Do., removable discs	.62 & 20%
Globe Angle and check valves, std.	.25%
Gate or straightway	.25%
Emco globe valves, std.	.20%
Emco check valves, std.	.20%
Emco gate valves, std.	.35%
Emco J. D. Globe	.25%
Jenkins Globe, angle and check valves + 15 less	10%
Emco swing check valves, ¾, ½, and 1 in.	.35%
Emco swing check valves, other sizes.	.28%
Jenkins gate or straightway + 11 less	10%
Jenkins iron body, globe and angle + 10 less	10%
Jenkins iron body, gate	less 12½ & 10%
Jenkins swing check valves + 21 less	10%
J. M. T. valves	plus 5%
J. M. T. style C valves	net
J. M. T. gate valves	12½ and 10% off
Webber pattern valves	.22%
COCKS (Steam)—	
Brass steam cocks, 2½ in. to 3 in.	.43%
Brass steam cocks, ½ in. to 2 in.	.50%
Brass steam cocks, std., ¼ in.	.25%

VALVES, FOOT—

	Blk.	Galvd.
1¼ in.	0 77	1 16
1½ in.	1 05	1 57
2 in.	1 32	1 98

PIG IRON PRICES STILL ARE WEAKENING

Toronto.

No signs of strength are yet noticeable in pig iron sales, a further weakening taking place in prices during the past two weeks.

Pig iron, which has been selling for some time at \$31.30 per ton in ordinary quantities, is now being quoted \$1 cheaper at \$30.30 per ton.

Very little local demand is noticed for this metal at present, notwithstanding the very low prices which are being



NEW KING WATER BOILERS

The Solution to All Home Heating Problems

The wise plumber knows that King Boilers can change the bleakest and chilliest of homes to havens of cozy, cheery comfort; that King Boiler Heating systems can be installed so quickly and with so little inconvenience that house routine is not disturbed. He knows, too, that the quick installation brings him larger profits.

Intensive work on your part now will bring sure, certain results. Emphasize the proven economy, the exclusive heating features, the moderate cost and the fine investment value of King Boilers. Sell more than a furnace—sell years of **genuine heating comfort**.

Imperial Radiators are fine running mates to King Boilers. They insure a perfect heating system.

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Carroll-Wilson, Limited, Edmonton, Alta.

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Canadian Iron Competing for Michigan Trade

CANADIAN iron is increasingly prominent. It is in active competition with United States furnaces in Michigan and has been sold not far distant from Chicago.

Iron Age says: Some expansion in automobile manufacture, sustained structural steel activity and, for Japan, buying and definite inquiries stand out in an otherwise featureless steel market. In pig iron the story is one of scattered sales at prices 50 cents and \$1 below those of a week ago.

In bookings of finished steel the rate so far in October approaches 10 per cent. better than for the same period in September. Mills devoted to one or two products have not done nearly so well, orders with some plate makers not exceeding 30 per cent. of capacity.

An improved scale of buying appears to wait on a flow of railroad equipment inquiries, which are expected to gather

in volume in December. Meanwhile, necessity purchasing describes the present and immediate outlook. Taking 60 to 65 per cent. of capacity, new orders and specifications on contracts are neither large enough to indicate that price cutting would bring an increase nor small enough to allow buyers to cease watchfulness for the upward turn.

Hope of pig iron sellers of being able to stop the downward trend of prices has rested on decrease of production and a number of merchant furnaces have either been blown out or will soon be put on the idle list. Whether this curtailment of operations will proceed rapidly enough to stop further price declines is not certain. Only five merchant stacks are now in blast in the Pittsburgh and Valley districts. Price recessions continue. At Pittsburgh, basic and foundry grades have been marked down \$1, while prices in nearly all other centres have been reduced from 50 cents to \$1.

quoted now. Canadian prices are so low now that some Canadian pig iron is competing with American iron in Michigan, nearly as far west as Chicago. This situation is without a doubt an extraordinary one, as very little pig iron from Canada finds its way into U. S. so far west.

PIG IRON—(Price per ton)—
In ordinary quantities 30 30

ENAMELED WARE SELLING IN GOOD QUANTITIES

Toronto.

Good quantities of enameled ware are passing through jobbing houses to dealers.

Most plumbing houses are having a fairly busy season as far as the installation of enamel ware fixtures is concerned.

Current prices are given herewith:

ENAMELED WARE—

Sinks, flat rim—	1 only	2 only	3 only
16 x 24	\$ 7 50	\$ 7 40	\$ 7 30
18 x 30	8 70	8 60	8 50
20 x 30	9 90	9 80	9 70
Bath tubs, roll rim, 4, 4½, 5 feet, 24 to 30 in. wide			51 40
Bath tubs, 5½ feet			57 10
Lavatories—			
17x19 in. Apron F139 or P4045.....			15 30
18x24 in. Apron F154 or P3845 or P3847			23 60
18x21 in. Apron F169 or P4205.....			17 60
17x19 in. Roll rim. F241 or P4345.....			12 60
Less 30 per cent.			

INGOT METAL PRICES ARE UNCHANGED; COPPER WEAK

Toronto.

Ingot copper prices are still unchanged locally notwithstanding the declines which have taken place in basic markets.

Lead prices have advanced slightly locally. Prices now range from \$8.25 to \$8.50 per 100 lbs. instead of from \$8 to \$8.25, as formerly quoted.

Ready sales are noted in ingot lead. Other metals are unchanged and prices are steady both locally and in primary

markets, with the exception of slightly stiffer prices on tin. the current quotation being \$46. Prices are as follows:

INGOT METALS—

Copper, \$18.00 to \$19.00; Tin, \$46.00; Lead, \$8.25 to \$8.50; Spelter, \$9.00; Antimony, \$8.25 to \$8.50; Aluminum, \$23.00 to 25.00.

TRADING IN PIPE FITTINGS FAIRLY ACTIVE

Toronto.

Trading during the past two weeks has been fairly active. Dealers report that a seasonable amount of work is being done which calls for a fair quantity of both cast iron and malleable pipe fittings.

Discounts in effect at the present time are given herewith:

PIPE FITTINGS—Cast Iron—

Elbows, tees, etc., standard sizes.....	10%
Plugs, solid, countersunk and std.....	10%
Bushings	15%
Flanged unions	17½%
Flanged fittings	20%
Drainage fittings, black.....	22½%
Do., galvanized	27½%
C. I. Stop cocks, up to 4"	25%
C. I. Stop cocks, up to 4" with brass plug	15%
Ringhangers	30%

MALLEABLE FITTINGS—

Bushings	15%
Hex. nipples, R. & L.	25%
Steam cock wrenches	30%
Union ells and tees	40%
Boiler fittings (old style).....	32½%
Do., (new style)	27½%
Lin. unions, all sizes	30%
Dart unions, blk. up to 2"	27½%
Dart Unions, blk. ½" also 2½" and over	10 and 10%
Wrought nipples to 4" close & short....	45%
Wrought nipples up to 4" long.....	50%
Wrought nipples, 4½ in. and up long....	40%
Wrought nipples, up to 4" close & short....	45%
Do., 4½" and up, close and short.....	35%
Malleable fittings, sold from price list, less 63%	

SALES OF REFRIGERATORS AND BOILERS FAIRLY ACTIVE

Toronto.

Sales of radiators and boilers still keeping up.

No changes have taken place in list prices or discounts off these lists during the past two weeks.

Prices are given herewith which are now in force:

RADIATORS AND BOILERS—

Revised radiator list prices are for 1, 2, 3, 4 and 5-column radiators per square foot.

38 in., \$1; 32 in., \$1.10; 30 in., \$1.15; 26 in., \$1.20; 23 in., \$1.26; 22 in., \$1.30; 20 in., \$1.36; 18 in., \$1.40; 16 in., \$1.50; 14 in., \$1.55; 13 in., \$1.60.

Discount on 2, 3, 4 and 5 column standard sizes, 44 per cent. for water and 45 per cent. for steam.

Discount on 1-column standard size, and 2, 3, and 4-column hospital sizes 36 per cent. for water and 37 per cent. for steam.

Discounts on 1 column hospital size water 22 per cent. Steam 23 per cent.

Wall radiators—5 ft., \$1.15; 6 ft., \$1.10; 7 ft., \$1.05; 9 ft., \$1.05; 12 ft., \$1.05. Discount 41 per cent.

BOILERS—

Water:

Round 52 per cent. off list. Square 8 per cent. off list.

Steam:

Round, 13 per cent. off list; Square, list plus 7 per cent.

SALES IN CLOSET COMBINATIONS ARE FAIRLY ACTIVE

Toronto

Local prices on closet combinations, closet bowls, seats and tanks have not been changed recently. Fairly active sales are being made in these lines in Ontario centres.

Prices in effect are given as follows:

CLOSET COMBINATIONS—

	Each
Oak, Wood Tank, Oak W. S. Seat and Cover	24 00
Oak Vitro Tank, Oak W.S. Seat and Cover	24 90
Oak Pussyfoot Tank, Oak W.S. Seat and Cover	24 00
Oak Wood Tank Oak P.H., Seat and Cover	24 50
Oak Vitro Tank, Oak P.H. Seat and Cover	24 50
White Vitro Oak Woodstrip Seat and Cover	24 50
White, Pussyfoot Oak Woodstrip, Seat and Cover	25 50
White Vitro Tank, Mahog., P.H. Seat and Cover	26 50
White Pussyfoot, Mahog., P.H. Seat and Cover	26 50
White Vitro or Pussyfoot, oak, P.H. Seat and Cover	26 00
Mahog. Pussyfoot, Mahogany P.H., Seat and Cover	27 00
Vitreous China Tank, Oak P.H., Seat and Cover	30 75
Enam. Iron Tank, Oak P.H. Seat and Cover	28 75
Vitreous China Tank, Mahog., P.H. Seat and Cover	31 00
Enam. Iron Tank, Mahog., P.H., Seat and Cover	29 00

ADDITIONS OR REDUCTIONS ON ABOVE—

If supplied less bend or offset, deduct..	0 50
If supplied with reverse trap bowl, add	1 50
If supplied with BOT Reverse Trap bowl Add	1 50
If supplied with plain syphon jet bowl Add	7 00
If supplied with N.P. stop cock on supply Pipe, Add	1 50
If supplied less brass and rubber floor flange and bolts, Deduct	0 60
If supplied less bend or offset, deduct..	0 50
If supplied less N. P. supply pipe deduct	0 60

CLOSET BOWLS—

Washdown bowl	10 00
Reverse trap bowl	14 00
Syphon jet bowl	18 75
"Richelieu" bowl	10 50

CLOSET TANKS—LOW DOWN—

Oak wood, Tank and inside fittings with bend and supply.....	11 20
Mahog. Wood Tank, and inside Fittings with bend and supply	15 40
Oak Vitro or Pussyfoot Tank and inside Fittings with bend and supply	11 20
White Vitro or Pussyfoot Tank and Inside Fittings with bend and supply.....	13 45
White Enam. Tank F-585 or P-9262, or White Vitreous China Belmeade Tank with fittings (as above).....	19 25

CLOSET SEATS—

Oak Rich. Seat and Cover to wall.....	3 50
Oak Woodstrip Seat and Cover with bolts	3 50
Oak Woodstrip Seat less Cover with bolts	2 90
Oak Post Hinge Seat and Cover.....	3 85
Mahog. Fin. Post Hinge Seat and Cover	4 05

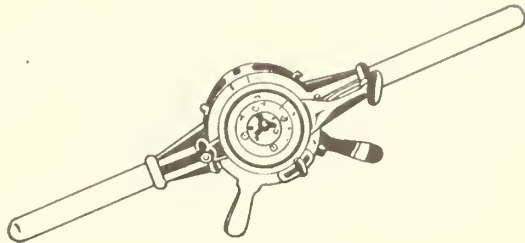
PRICES STEADY ON GROUND KEY WORK

Toronto

With a fair amount of trading being done in ground key work. the prices re-

What class are you in

Ancient or Modern?

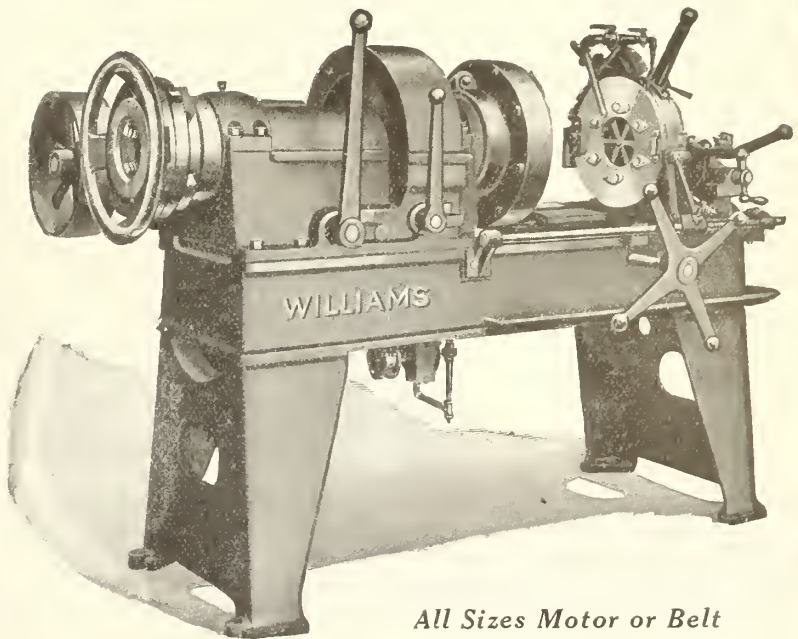
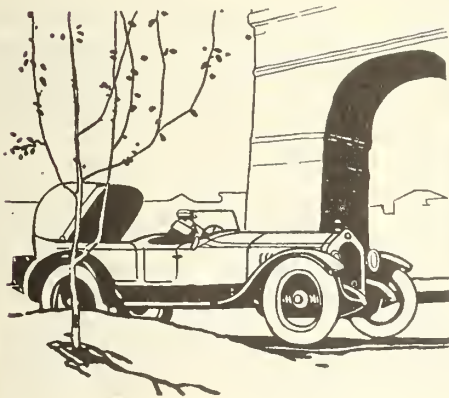


The Best is Always the Cheapest

IF YOU are in the Modern Class you have attained the highest degree in Speed and Workmanship—that's saying something. —If you are in the Ancient Class you no doubt realize you are in a rut, but can't seem to get out. It's easy though, for Williams have a time payment plan which enables you to pay for the Machine as it earns for you—

Throw away your Hand Stocks—cut perfect Threads—cut-off your Pipe at high speed and **SAVE MONEY** by installing a

WILLIAMS PIPE THREADING MACHINE



All Sizes Motor or Belt

Williams Tool Corporation of Canada

American Plant, Erie, Penn.

Brantford, Ontario

LIMITED

main steady at levels established some time ago.

Prices and discounts now effective are given herewith:

GROUND KEY WORK—

Nos. 3982-3993, roundway,	56% Off
Nos. 3954-3969, flatway	56% Off
Nos. 4031-4036	45% Off
Nos. 4043-4048	37% Off
Nos. 4049-4054	37% Off
Flatway stops, Iron Pipe, rough, No. 3968, ½ inch	0 77
Flatway stops, and waste, No. 3969, ½ inch	0 79

ASBESTOS PRODUCTS MOVING IN GOOD VOLUME

Toronto.

No changes have occurred in the prices on asbestos products.

Asbestos jobbing houses locally report that a good season's business is in progress.

Sales have been especially good in all lines of pipe coverings and boiler coverings.

Discounts and net prices now effective are given herewith:

ASBESTOS PRODUCTS—

Pipe Covering—	
Air cell, 4 ply	50 per cent. off list.
Air cell, 3 ply	55 per cent. off list.
Air cell, 2 ply	57½ per cent. off list.
Boiler Covering	\$1.50, \$1.75 per bag
Asbestos paper or felt	\$8.25...\$8.50
Magnesia pipe covering	less 40 per cent.
Magnesia pipe covering, small lots, less 35 per cent.	

LEAD AND ZINC GOODS PRICES VERY FIRM

Toronto.

Prices are very firm on lead and zinc goods at present.

Sales are reported to have been good during the past two weeks on these lines.

Prices now in effect are as follows:

LEAD AND ZINC GOODS—

Lead pipe, per 100 lbs., up to 2"	14 50
Do., 2" to 8"	15 50
Do., 8" and over	16 50
Lead waste, per 100 lbs.	15 50
Note—Lead pipe is subject to a discount of 10 per cent.	
Lead traps and bends	15%
Lead wool, lb.	0 14½
Lead sheets, 2½ lbs., sq. ft. per lb.	0 12½
Lead sheets, 3 to 3½ lbs.	0 11 9 11½
Do., 4 to 8 lbs., sq. ft. lb.	0 10 0 11½
Cut sheets, ¾c. per lb. extra.	
Cut sheets, to size, 1c. per lb. extra.	
Solder, guaranteed, lb.	0 30
Do., strictly, lb.	0 29
Do., commercial	0 26½
Do., wiping	0 27
Do., wire	0 34½
Zinc sheets, casks, lb.	0 11¾ 0 12½
Do., do., less, lb.	0 12¼ 0 13½

WHAT IS A MAN?

WHAT is a man? Is he just bone and muscle, so much beef to be used for the strength that is in him, or is there something in his make-up of vastly greater value than mere brute strength? The Almighty endowed us all most abundantly for the battle of life. If we do not use our endowments to the fullest, we have no one to blame but ourselves for our lack of success. If, however, we make no attempt to develop endowments in others, we are neglecting both a privilege and a duty.

CONTRACT AWARDED

HAMILTON.—The plumbing contract on the \$100,000 sub-station at Ottawa and Beach Roads, for the Hamilton Hydro Commission, has been awarded to the Robt. Fitzsimmons Co., Hamilton.

Winnipeg.

WINNIPEG, Oct. 30.—With the advent of the more seasonable cold weather, there has been a considerable stimulation in heating lines, both in sales of stoves and heaters, and also in installations of steam and hot water equipment. There is little change to report in the plumbing and steamfitting lines. With the approach of colder weather sales have dropped off and business is reported quieter. There is a revision in discount on radiator fittings such as valves and elbows.

REVISION IN DISCOUNT ON VALVES AND ELBOWS

Winnipeg.

Revised prices are in effect on radiator fittings such as valves and elbows. Radiator valves are quoted at list price less 55% and elbows show the same discount.

SOIL PIPE PRICES AT FORMER LEVELS

Winnipeg.

Soil pipe prices are fully maintained by dealers. Sales are dropping off with the approach of cold weather.

LEAD AND ZINC GOODS STEADY IN PRICE

Winnipeg.

Lead and zinc goods prices remain steady. Business is rather quiet in these lines at present. Lead prices on primary markets are showing a firmer tone. The zinc market is slightly easier.

SALES IN CORRUGATED SHEETS SEASONABLE

Winnipeg.

Dealers in corrugated sheets state that sales for this line are seasonable. Prices are steady and show no change.

DEMAND FOR CLOSET GOODS LIGHT

Winnipeg.

Dealers report that the demand for closet combinations, seats, tanks, etc., is quiet at the present time. Prices are well maintained.

BOILER STANDS REMAIN FIRM AT OLD LEVELS

Winnipeg.

Range boiler stands continue firm in price at levels established some months ago. Sales, while not heavy, have been seasonable and quotations remain unchanged.

NO CHANGE IN EAVESTROUGH AND CONDUCTOR PIPE

Winnipeg.

With the approach of colder weather, the demand for eavestrough and conductor pipe has fallen off slightly. Quotations show no change.

STOVE PIPE DAMPERS SELLING WELL

Winnipeg.

There has been a heavy demand for stove pipe dampers and sales have been fairly heavy during the past few weeks.

Baldwin Canadian Plant Likely to Re-open Early Next Spring at Capacity

TORONTO.—There is a strong possibility that the Baldwin Canadian Steel Corporation, a subsidiary company of the British Baldwin Company, of which the present British premier is the head, will re-open their plant at Ashbridge's Bay early next year. Directors of the parent firm are expected to visit Canada shortly to consider the whole situation.

It is stated on good authority that if operations are commenced, the plant will be run at capacity, employing in the neighborhood of 600 men, as it is stated that it would be uneconomical to operate on a reduced basis.

Enquiries have already been made in the United States in three different quarters for prices on sheet bars for delivery in the first quarter of 1924, it being pointed out that the Welsh market is not in a position to compete as to continuity of supply at the present time, particularly as the shipments could not stand the freight rate from St. John in winter. A certain quantity of materials

may be purchased from the Steel Co. of Canada, this being one of the companies of whom quotation enquiries on sheet bars have been made.

MUCH INTERESTED IN MERGER

Peterborough, Ont.—Much interest is manifest locally in the announcement that the Canadian General Electric Co. is likely to pass into the hands of the General Electric Co. of the United States. One of the largest plants of the company, employing 2,000 hands, is located in this city. It is felt here that the absorption of the Canadian company will result in the concentration at one place of many of the plants now scattered throughout the country, and will also result in larger development in the Canadian electrical manufacturing field.

MANAGER SEVERS CONNECTION

Owen Sound, Ont.—George H. Douglass, manager of the Northern Bolt, Screw & Wire Co., has resigned to accept a position in Windsor. Prior to his leaving, a presentation from the office staff and foremen of the different departments of the plant was made by General Manager Fraser.

They'll Give Service— JENKINS Radiator Valves



Fig. 491.
Angle (Male Union)
Fibre Composition
Wheel.



Fig. 493.
Hot water valve
(Screwed).
Fibre Composition
Wheel.

are far superior to the ordinary run of radiator valves.

Made of a superior grade of bronze they are much heavier and stronger. They are true Jenkins Valves in design, material and workmanship.

They assure long and satisfactory service even where the conditions of usage are extra severe.

Supplied with either male union or with screwed ends as desired. Regularly furnished with rough body, nickel plated all over.

Catalog No. 9—free on request—describes them and the other Jenkins Valves in detail.

Write for your copy to-day.

JENKINS BROS., Limited

Head Office and Work:

103 St. REMI ST., MONTREAL

SALES OFFICES: Toronto, Vancouver.

EUROPEAN BRANCH: London W.C. 2, England.

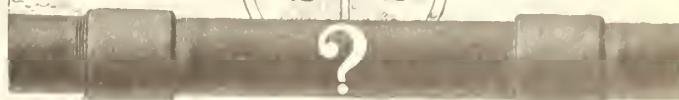
FACTORIES: Montreal, Bridgeport, Elizabeth.



Half a cent. per joint, the average cost of the cheapest pipe-joint compound you can use.



This half a cent is the extra cost of leak-proof joints made with Smooth-On No. 3.



Isn't it worth the other half cent to make this joint tight for all time

LOOK to the future! What's half a cent one way or the other compared with labor and material costs in re-making a screw-thread joint?

That extra half cent covering the use of Smooth-On is the turning point between perfect service and no end of nuisance in the after years.

As long as a Smooth-On joint stays in the line, it **stays tight** because the iron body in the Smooth-On can't dry out, shrivel or shrink—yet the joint can be unscrewed if changes in the lines become necessary.

Smooth-On Satisfaction can't be explained—it must be experienced.

Try the free sample (see coupon) and you will want more for every new screw-thread joint you make. Use it also for painting gaskets, pressure seams, etc., and thickened with Smooth-On No. 1 to make boiler patches.

Smooth-On No. 3 comes ready to use, in 1-lb., 5-lb., and 10-lb. gray-labeled cans. If your dealer is out of stock, send us his name so we can see that you are supplied.

Send for a free copy of Smooth-On Instruction Book

This 144-page book of simple directions and diagrams will post you well on Smooth-On, where to use each grade, how to apply for best results and what to expect. Sent free if you mail the coupon.



The Canadian Asbestos Company, Dept. 60

36 Youville Square
MONTREAL, QUE.

Do it with SMOOTH-ON

The Canadian Asbestos Co., 36 Youville Square, Montreal, Que.

Please send the free sample can of Smooth-On No. 3 and also copy of the Smooth-On Instruction Book.

Name.....

Address.....

San. Eng. Nov.

**AIR COMPRESSORS**

Smart Turner Machine Co., Ltd., Hamilton, Ont.

AIR LINE SYSTEMS

C. A. Dunham, Co., Ltd., Toronto.

ALUMINUM CASTINGS

Fittings, Limited, Oshawa.
Canada Metal Co., Ltd., Toronto.

AIR VALVES

Beaton & Caldwell Mfg. Co., New Britain, Conn.
Crane, Limited, Montreal, Que.
W. H. Cunningham & Hill, Ltd., Toronto.
C. A. Dunham Co., Ltd., Toronto.
Empire Mfg. Co., Ltd., London and Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
Wallaceburg Brass & Iron Mfg. Co., Ltd., Wallaceburg, Ont.
Wolverine Ltd., Toronto, Ont.

BATHS, STEEL

Steel Trough & Machine Co., Ltd., Tweed, Ont.

ATMOSPHERIC STEAM HEATING

J. E. Farrell, 210 Galley Ave., Toronto, Ont.

BATHROOM FITTINGS

Canada Metal Co., Ltd., Toronto.
Crane, Limited, Montreal, Que.
W. H. Cunningham & Hill, Ltd., Toronto.

BENDING SPRINGS

W. H. Cunningham & Hill, Ltd., Toronto.

BOILERS, STEAM OR HOT WATER

Crane, Limited, Montreal, Que.
Gurney Foundry Co., Limited, Toronto.
Imperial Radiator Co., Ltd., St. Catharines, Ont.
Lord & Burnham Co., Ltd., Toronto.
Warden King, Ltd., Montreal.

BOILER FEED PUMPS

Smart Turner Machine Co., Ltd., Hamilton, Ont.

BOILER FEED REGULATORS

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J. E. Farrell, 210 Galley Ave., Toronto, Ont.
C. A. Dunham Co., Ltd., Toronto

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Canada Metal Co., Ltd., Toronto.
Crane, Limited, Montreal, Que.
C. A. Dunham, Co., Ltd., Toronto.
Empire Mfg. Co., Ltd., London and Toronto.
Galt Brass Co., Limited, Galt.
Kerr Engine Co., Ltd., Walkerville.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
Standard Sanitary Mfg. Co., Ltd., Toronto
Hamilton.
Wallaceburg Brass & Iron Mfg. Co., Ltd., Wallaceburg, Ont.
Wolverine Ltd., Toronto, Ont.
W. H. Cunningham & Hill, Ltd., Toronto.

BRASS PIPE AND TUBE

Canada Metal Co., Ltd., Toronto.
Crane, Limited, Montreal, Que.
Empire Mfg. Co., Ltd., London and Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
Wolverine, Ltd., Toronto, Ont.

CASTINGS

Canada Metal Co., Ltd., Toronto.

CELLAR DRAINERS

Crane, Limited, Montreal, Que.
Galt Brass Co., Limited, Galt.
Empire Mfg. Co., Ltd., London and Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
Standard Sanitary Mfg. Co., Ltd., Toronto, and Hamilton.

CIRCULATORS

J. E. Farrell, 210 Galley Ave., Toronto, Ont.

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Fittings, Limited, Oshawa.

CLOSETS

Canada Metal Co., Ltd., Toronto.
Crane, Limited, Montreal, Que.
Empire Mfg. Co., Ltd., London and Toronto.
Galt Brass Co., Limited, Galt.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
Standard Sanitary Mfg. Co., Ltd., Toronto.
Hamilton.
Steel Trough & Machine Co., Ltd., Tweed, Ont.

CLOSETS, CHEMICAL

T. G. Griffith & Co., Ltd., Toronto, Ont.
Steel Trough & Machine Co., Ltd., Tweed, Ont.

CONDENSATION UNITS

C. A. Dunham Co., Ltd., Toronto, Ont.
J. E. Farrell, 210 Galley Ave., Toronto, Ont.
Smart Turner Machine Co., Ltd., Hamilton, Ont.

COUNTRY RESIDENCE EQUIPMENTS

Empire Mfg. Co., Ltd., London and Toronto.
T. G. Griffith & Co., Toronto, Ont.
H. Mueller Mfg. Co., Sarnia, Ont.
Smart Turner Machine Co., Ltd., Hamilton, Ont.

COUPLINGS

Canada Metal Co., Ltd., Toronto.
Crane, Limited, Montreal, Que.

DAMPER REGULATORS

C. A. Dunham Co., Ltd., Toronto.

DRAINAGE FITTINGS

Canada Metal Co., Ltd., Toronto.
Crane, Limited, Montreal, Que.
Empire Mfg. Co., Ltd., London and Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
Standard Sanitary Mfg. Co., Ltd., Toronto.
Hamilton.
Warden King, Ltd., Montreal.

DRAIN PIPE SOLVENT

W. H. Cunningham & Hill, Ltd., Toronto.

DRINKING FOUNTAINS

Canada Metal Co., Ltd., Toronto.
Crane, Limited, Montreal, Que.
Empire Mfg. Co., Ltd., London and Toronto.
T. G. Griffith & Co., Toronto, Ont.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
Standard Sanitary Mfg. Co., Ltd., Toronto.
Hamilton.

EJECTORS, STEAM

Crane, Limited, Montreal, Que.
Kerr Engine Co., Walkerville.

ENAMELWARE

Amherst Foundry Co., Ltd., Amherst, N.S.
Canada Metal Co., Ltd., Toronto.
Crane, Limited, Montreal, Que.
Empire Mfg. Co., Ltd., London and Toronto.
Galt Brass Co., Limited, Galt.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
Standard Sanitary Mfg. Co., Ltd., Toronto.
Hamilton.

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H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
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EXPANSION TANKS

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Toronto Hardware Mfg. Co., Ltd., Toronto.

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Crane, Limited, Montreal, Que.
Empire Mfg. Co., Ltd., London and Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
Standard Sanitary Mfg. Co., Ltd., Toronto.
Hamilton.
Warden King, Ltd., Montreal.

FLUSHMETERS

Canada Metal Co., Ltd., Toronto.
Crane, Limited, Montreal, Que.
Empire Mfg. Co., Ltd., London and Toronto.
Galt Brass Co., Ltd., Galt.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
Standard Sanitary Mfg. Co., Ltd., Toronto.
Hamilton.
Wolverine Ltd., Toronto, Ont.

FLOOR AND CEILING PLATES

Beaton & Caldwell Mfg. Co., New Britain, Conn.
Crane, Limited, Montreal, Que.
W. H. Cunningham & Hill, Ltd., Toronto.
Wolverine Ltd., Toronto, Ont.
Empire Mfg. Co., Ltd., London and Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.

FURNACES

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Gurney Foundry Co., Limited, Toronto.
Warden King, Ltd., Montreal.

GASOLINE ENGINES

Empire Mfg. Co., Ltd., London and Toronto.

GAS WATER HEATERS

Bastian-Morley, Limited, Toronto.
Crane, Limited, Montreal, Que.
Empire Mfg. Co., Ltd., London and Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
Pittsburgh Water Heater Co., Pittsburgh, Pa.
Ruud Mfg. Co., Ltd., Toronto.
Standard Sanitary Mfg. Co., Ltd., Toronto.
Hamilton.
W. H. Cunningham & Hill, Ltd., Toronto.

HEAT GENERATORS

Galt Brass Co., Galt, Ont.

HEATING APPARATUS

Crane, Limited, Montreal, Que.
C. A. Dunham Co., Ltd., Toronto.
Smart Turner Machine Co., Ltd., Hamilton, Ont.
J. E. Farrell, 210 Galley Ave., Toronto, Ont.

HEATERS

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Crane, Limited, Montreal, Que.
Lord & Burnham Co., Ltd., Toronto.
Ruud Mfg. Co., Toronto.
Smart Turner Machine Co., Ltd., Hamilton, Ont.
Warden King, Ltd., Montreal and Toronto.
W. H. Cunningham & Hill, Ltd., Toronto.

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J. E. Farrell, 210 Galley Ave., Toronto, Ont.

KEROSENE WATER HEATERS

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McClary Mfg. Co., Ltd., London, Ont.

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Steel Trough & Machine Co., Ltd., Tweed, Ont.

LAVATORIES

Canadian Potteries, Ltd., Saint Johns, Que.
Crane, Limited, Montreal, Que.
Shanks & Co., Barrhead, Scotland.
Standard Sanitary Mfg. Co., Ltd., Toronto, Ont.



Regular Monthly Sales

*On a quick-selling,
profit-making specialty*

DESOLVO!

Use Desolvo yourself on the next trip to open a clogged or frozen drain pipe—show your customer how easy it is to use—and how quickly it opens a drain pipe, and you have secured another regular customer.

Desolvo is a chemical solvent which generates an intense dissolving heat on contact with cold or hot water, boiling its way through pipe obstructions.

Get your supply of Desolvo now.

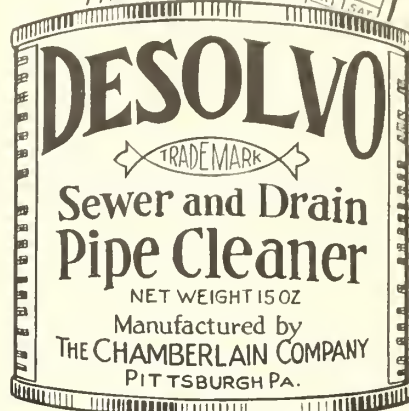


Kloset Klean removes sediment, stains and odors from toilet bowls without scrubbing.

Chamberlain-Desolvo Company, Ltd.

Toronto

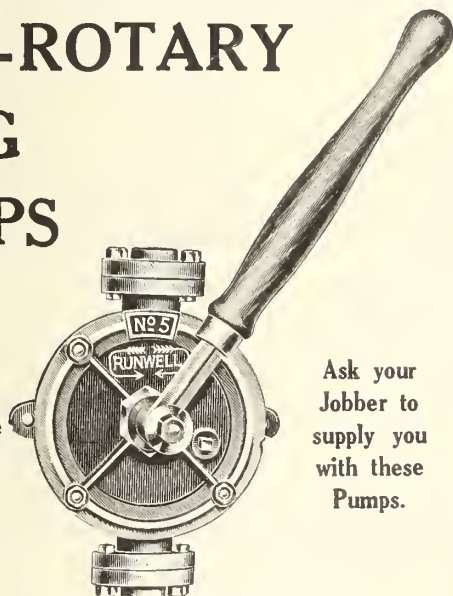
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TRADE **RUNWELL** MARK

SEMI-ROTARY WING PUMPS

British
Manufacture



Ask your
Jobber to
supply you
with these
Pumps.

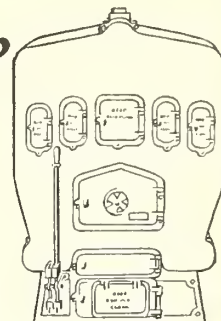
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Burnham Boilers

BUT

Do They Do
What They Say
They Will Do?



The Square Burnham is made in 38 sizes, 19 each for water and steam.

If a Burnham rating says it will do a certain thing, then it will certainly do that thing.

Lord & Burnham Co. Limited of Canada

(Boiler Department)

Harbor Com'n
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Toronto, Ont.

Factory:
St. Catharines, Ont.



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Kerr Engine Co., Walkerville.
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Wolverine, Ltd., Toronto, Ont.
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Katie Foundry Co., Galt, Ont.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
Standard Sanitary Mfg. Co., Ltd., Toronto, Hamilton.
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Borden Canadian Co., Warren, Ohio.
Crane, Limited, Montreal, Que.
A. B. Jardine & Co., Hespeler.
W. H. Cunningham & Hill, Ltd., Toronto.
Williams Tool Corp. of Canada, Brantford, Ont.

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W. H. Cunningham & Hill, Ltd., Toronto.
Greenfield Tap & Die Corp., Galt, Ont.

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Crane, Limited, Montreal, Que.
Empire Mfg. Co., London and Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
Shanks & Co., Barrhead, Scotland.

PUMPS

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Canadian Fairbanks-Morse Co., Ltd., Montreal, Que.

W. H. Cunningham & Hill, Ltd., Toronto.
T. G. Griffith & Co., Ltd., Toronto, Ont.
H. Mueller Mfg. Co., Limited.
Smart Turner Machine Co., Ltd., Hamilton, Ont.
Steel Trough & Machine Co., Ltd., Tweed, Ont.

PUMP, HAND AND POWER, FOR PAINTS,

OILS, OIL AND GASOLINE
Ashwell & Nesbitt, Ltd., Leicester, Eng.

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Canadian Fairbanks-Morse Co., Ltd., Montreal, Que.
Crane, Limited, Montreal, Que.
T. G. Griffith & Co., Ltd., Toronto, Ont.
H. Mueller Mfg. Co., Limited.
Smart Turner Machine Co., Ltd., Hamilton, Ont.
Beaton & Cadwell Mfg. Co., New Britain, Conn.

RADIATORS

Crane, Limited, Montreal, Que.
Gurney Foundry Co., Limited, Toronto.
Imperial Radiator Co., Ltd., St. Catharines, Ont.
Lord & Burnham Co., Ltd., Toronto.
Warden King Ltd., Montreal

RADIATOR HANGERS

Crane, Limited, Montreal, Que.
Healy Ruff Company.

RADIATOR TRAPS (STEAM)

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C. A. Dunham Co., Ltd., Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.

RIVETS

Fittings, Limited, Oshawa.

RANGE BOILERS

Crane, Limited, Montreal, Que.
Standard Sanitary Mfg. Co., Ltd., Toronto, Hamilton.
Toronto Hardware Mfg. Co., Toronto.

REDUCING PRESSURE VALVES

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C. A. Dunham Co., Ltd., Toronto.
J. E. Farrell, 210 Galley Ave., Toronto, Ont.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.

RETURN TILTING TRAPS

Crane, Limited, Montreal, Que.
J. E. Farrell, 210 Galley Ave., Toronto, Ont.

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Canada Metal Co., Ltd., Toronto.
Crane, Limited, Montreal, Que.
Empire Mfg. Co., London and Toronto.
Standard Sanitary Mfg. Co., Ltd., Toronto, Hamilton.

SEPTIC TANK VALVES AND SYPHONS

Anthes Foundry Co., Ltd., Toronto.
Empire Mfg. Co., London and Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.

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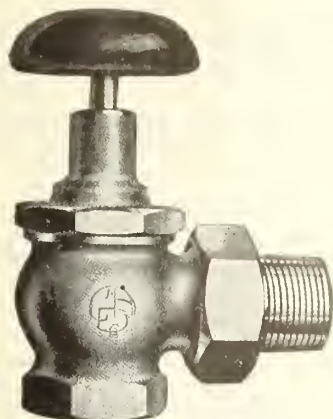
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Greenfield Tap & Die Corp., Galt, Ont.
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When Answering Advertisements Mention
SANITARY ENGINEER



Type No. 140—Made in all Patterns
The interchangeable parts shown
below are of selected, time-tested
materials that insure long life.
Ultimate renewals may be made at
a minimum of cost and inconvenience.

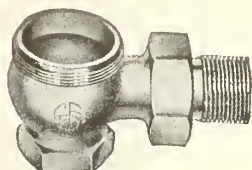
Dunham Packless Radiator Valves With Wheel-Type Handle and Interchangeable Parts

This is constructed with built up bellows just like the Dunham-Lever Handle Valve and can be fully opened or closed with approximately one turn of the handle. It is particularly popular with heating contractors because of its effectiveness on steam or hot water type radiators and its convenience for either top or bottom connection. Sturdy, good looking and absolutely leak proof.

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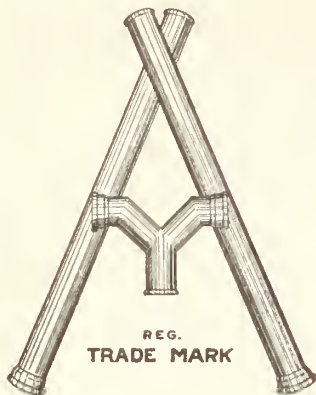


The DUNHAM
REG. TRADE-MARK
HEATING SERVICE
MADE in CANADA

If You Want the Best **Specify** **Rivetted and Brazed Range Boilers**

*If You Want a Cheaper Kind
We Will Soon Be Producing
the
Best Welded Boiler on the Market*

TORONTO HARDWARE MANUFACTURING CO. LIMITED



USE

TESTED Soil Pipe

IT COSTS NO MORE AND YOU KNOW THE JOB IS RIGHT

Manufactured by

FORWELL FOUNDRY, LTD.

KITCHENER, ONT.



Made with Steel Handles in all sizes.

"Trimo"

an aid to real results

If you are thinking of doing a satisfactory job without the aid of a reliable wrench stop right there!

You can't do it!

Sit down and write us about the "Trimo," the wrench with the Steel Frames, Nut Guards and Insertable Jaw that renews the handle.

Made with Wood Handles in 6", 8", 10", 14" sizes.

Trimont Manufacturing Co.
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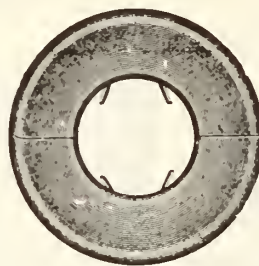
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Quality



Service



There's Nothing More Useful

—than a good floor and ceiling plate.

Here is your chance.

No. 10-A Narrow Flange Plate is a Steel Hinged Plate, Flanges $\frac{3}{4}$ " wide. Highly finished.

Especially designed for twin connection "Narrow." Can be attached to mains and risers at the very last.

Gem No. 4 Automatic Air Valve

Made of the best brass obtainable. Equipped with high grade carbon. Guaranteed.

Catalogue sent on request.

The BEATON & CADWELL Mfg. Co.
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GEM No. 4

Are These The Opportunities You're Looking For?

Fan Heating and Ventilating Engineering is the pinnacle of all other forms of heating, and of all branches of steam fitting and sheet metal work. It prepares you for:

1. For Employers it enlarges their business opportunities 100%.
2. Employees it raises to Foremanship of a large shop.
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5. As Chief Engineer with a Heating or Furnace Manufacturing Company.
6. Later a Consulting Engineer to Architects and Building Contractors, etc.

Which of These Are You Working for?

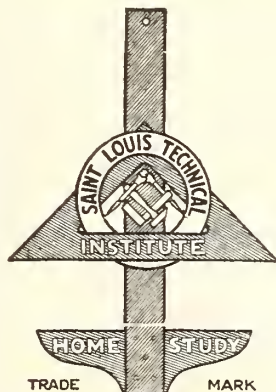
Full Information Free.

[] Fan Heating and Ventilating Engineering.

Select Your Course.

[] Sheet Metal Design and Pattern Drafting.

[] Business Management, for office folks.



TRADE

MARK

ST. LOUIS TECHNICAL INSTITUTE

4543 Clayton Avenue

O. W. Kothe, Prin.

St. Louis, Mo.

What kind of a water heater does your customer need?

YOUR customer wants a water heater. And to him it is just a water heater. He has no particular type or kind in mind. He knows that his present system of water heating is inadequate. He will probably buy an automatic or a storage of any size that you recommend.

But which type, which size heater will be the *best for him*?

There are eighteen Pittsburgs in the complete Pittsburg line. There is one for every one of your customers whether he wants to supply hot water to one bathroom or a dozen. And that heater will give him his hot water *at the cheapest possible rate per gallon*.

It pays to handle the complete line. You have a satisfied customer. You have installed a heater that is right for the job. There are no service charges to eat into your profit.

Write to-day for complete details.

Pittsburg AUTOMATIC GAS WATER HEATERS

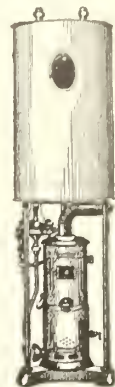
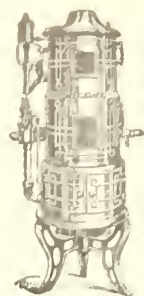
"If it's done with heat, you can do it BETTER with gas"

PITTSBURG WATER HEATER COMPANY

Canadian Distributors:

E. M. PATTERSON, 504 Spadina Avenue, Toronto, Ont.

Lion Tank Heaters are made and sold in Canada by the Eriez Stove & Mfg. Co., Ltd., Montreal



KERR VALVES

For Steam and Hot Water Heating

Kerr Radiator Valves need no introduction. They have been setting a standard of quality and efficiency in connection with Hot Water and Steam heating for many years, and continue as recognized leaders in this line of valves.

Kerr Valves on your Radiator is a stamp of quality on the job.

Ask your jobber for KERR valves. He likely has them in stock.

Kerr N. P. Union Elbows register with either the Hot Water or the Steam Valve, and are of same standard high quality.



No. 34.



No. 39.

The **KERR ENGINE COMPANY**
LIMITED

WALKERVILLE

Valve Manufacturers

ONTARIO

The Marvel

Heater and Tank Combined

Can't Wear Out, Burn Out, nor Rust Out

THE Marvel is free from coils, disks, or other parts that ordinarily wear out, burn out, rust out or break. Because of the constant circulation of the water it will not lime up nor become clogged.

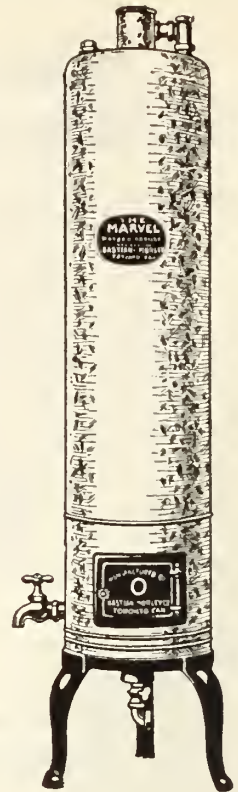
The Marvel—compact, simple, low-priced and efficient—will give your customers long years of smooth service.

Entirely different both in heating principle and in design, the Marvel offers more and better service for a fraction of the cost of an old-style heater.

*Write to-day for full particulars
Sold only through or by plumbers*

BASTIAN-MORLEY LIMITED

125 Hanson St., TORONTO



Don't say "No"

Say "yes" to the man who asks you whether you can install a septic tank for him before winter.

Stop thinking in terms of concrete, bricks, and mortar—the Griffith All Metal Septic Tank, complete, ready for installation, has sent the old style expensive model to the discard.

No waiting for concrete to set, no depending on bricklayers, no delays when you install a Griffith. Get busy to-day on those jobs that you would ordinarily put off till spring. With the Griffith Tank you can make installations right up to the last minute of fair weather.

Chemical Closets — Dayton Pumps — Write to-day for prices

Manufacturers and Sanitary Engineers **T. G. GRIFFITH & COMPANY** 165 King Street East
TORONTO, Ontario

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CHRISTIE UNIT SYSTEM SEPTIC TANKS

Convenience for ALL. Thousands of homes can be modernized. Any place where there is NOT a Public Sewer CHRISTIE'S UNIT SYSTEM SEPTIC TANK is the only correct method of disposal.

HEALTHY, CONVENIENT, ECONOMICAL

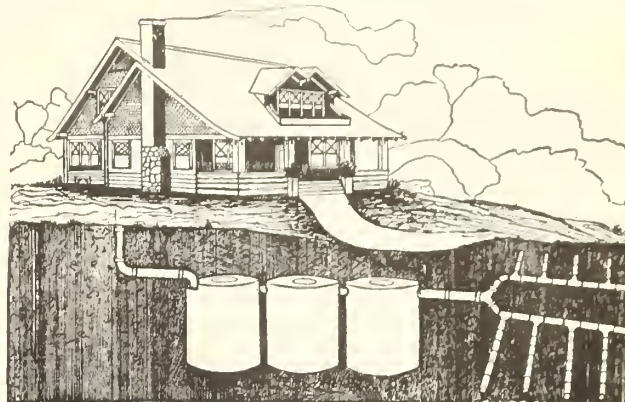
Made of Reinforced Concrete. Can be shipped anywhere. Easy to install. Low in price. Both syphon and overflow type. No job too small. None too large. We have a type for both heavy and light soils.

HOUSES, SCHOOLS and SUMMER HOUSES.

Write for catalogue and dealers' price list.

Manufactured By

Christie Concrete Products Co.
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PATENTED

RADIATOR HANGER

YOU'LL USE 'EM YET!



Style R

The only hanger adjustable for both height and lateral position. Does not require accurate placing of Anchor bolts. Uses standard fittings for return pipes. Out of sight when installed.

Write for the Whole
List of Their Advan-
tages.

Made in Canada

Healy-Ruff Co.

Dept. 23,

Minneapolis, Minn.

WANT ADS

If you want a buyer, clerk, salesman, traveler, position, you can reach the best men in the trade through these columns.

If you wish to buy or sell a business, or dispose of overstocks, you can reach a larger number of sanitary engineers through this page than in any other way.

Rates (payable in advance) 2 cents per word. An additional charge of 10 cents for each insertion is made when Box Number is required. Each figure counts as one word. When panels are desired a charge of \$2.00 is made for a panel 1 inch deep by 2½ inches wide. Address all advertisements for this section to SANITARY ENGINEER, 143-153 University Avenue, Toronto, Canada.

WANTED

Salesman to handle established line of Canadian made gas water heaters on commission. State present connection, territory and how often covered. Also representatives for Western and Eastern Canada.

Canadian Heater Co.,
Hamilton, Ontario.



Tapped Closet Bend

Easier to attach
More permanent
Cost less



PATENTED
IN
CANADA



**Better
Selling
Value
Than Ever**

We have equipped our Steel Baths with Pressed Steel Removable Legs and 3 inch Roll Rim around the top, for which we have secured a Canadian Patent. This Roll Rim adds greatly to the selling value of

TWEED ENAMELLED STEEL BATHS

They now look like the expensive cast enamel baths but are the same price as before. Our new patent Roll Rim Enamelled Steel Baths are now ready for shipment—Order samples.

The Steel Trough & Machine Co. Ltd., Tweed, Ont.

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WROUGHT PIPE



Suitable for the approaching period of building activity, road construction, etc. This is a line of great importance in making successful, profitable contracts. Our C. T. Brand of Wrought Pipe has been

THOROUGHLY INSPECTED

by practical, experienced men. It is tested to 600 lbs. hydraulic pressure, and branded with our trade-mark. We carry this line of reliable pipe in sizes ½-in. to 4-in. Black or Galvanized. We also manufacture nipples and couplings, black and galvanized, in all sizes.

Ask your Jobber for C. T. Brand Wrought Pipe

Canadian Tube and Steel Products Co., Ltd.
Operating Canadian Tube and Iron Co., Limited
Works at Lachine Canal, Montreal

Farrfhern

Atmospheric Steam Heating Systems

Give a noiseless perfect circulation, without the use of air vents or traps on radiators.

No Vacuum Pumps are used. Consequently it saves fuel and costs for maintenance.

Farrfhern Heating will make the work of Contractors more profitable.

It is for buildings of every type and size.

Let us co-operate with you on the next heating prospect. The more difficult it may be, the better we will like it.

Write us for information

Farrfhern Steam Service

304 Manning Chambers, Toronto

TORONTO Water Systems

Hundreds of hardware dealers and plumbers are making good profits selling pneumatic water systems.

The demand now is for a system simple and compact of construction, yet strongly built—one destined to give constant, reliable, and automatic service.

The "TORONTO" is just such a system, giving excellent service after fifteen to twenty years continuous use. Supplied in all sizes and for all purposes.

Write us for descriptive catalogue "Running Water in Rural Homes" and prices.



Ontario Wind Engine & Pump Co., Ltd.

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Montreal

Winnipeg

Regina

Calgary

Dart Union Pipe Couplings are
Bronze to Bronze
(Both Face and Seat)

This feature prevents deterioration at the vital point, and is the Reason Why

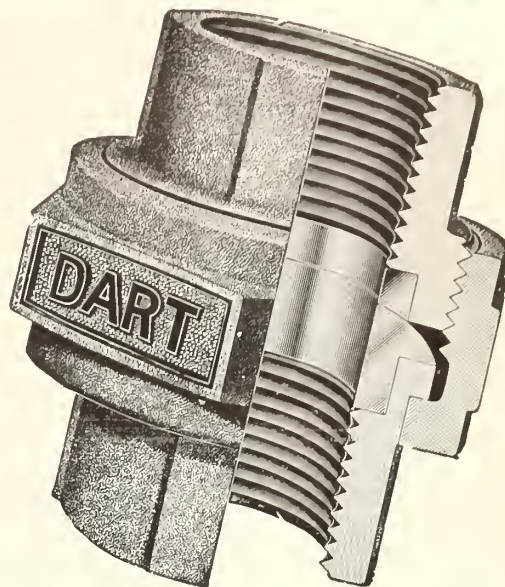
**DART UNIONS
STAY TIGHT**

—permanently

Dart Unions are really Economical and Troubleproof. Have you tried them?

Sold by all Jobbers

Dart Union Co., Limited, Toronto, Ont.



**BEAVER BRAND
Porcelain Enamel Ware**

—*Your Guarantee of Quality*—

Beaver Brand Enamelware by its ability to meet the highest demands for service under all conditions, has established itself in the confidence of the public to such an extent that each month witnesses an ever-increasing demand for products of Beaver manufacture.

Amherst Foundry Co., Limited

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Monarch Brass Mfg. Co.
71 Brown St., Toronto

MANITOBA AND NORTHWEST:
E. B. Plewes
197 Princess St., Winnipeg



SPEED!



SPEED!—"Let's Go!"—Action! This is the spirit of to-day.

The New Perfecto Quick Opening Radiator Valve is thoroughly in keeping with the times.

Zip!—one twist and it is open.
Zip!—another and it is closed.

All parts are machined to gauge and are interchangeable. Curved top cannot catch dust. The same "Two for One" guarantee that applies on all Perfecto Brass Goods goes with this newer, better valve.

**Teck Flush Valves—Perfecto
Brass Goods — Vitro Tanks.**

GALT BRASS COMPANY LTD.

Galt - Ontario

Branch Offices:

Toronto

Montreal

Winnipeg

Sanitary Engineer

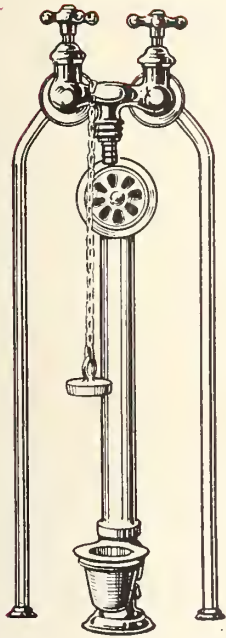
Plumber and Steamfitter of Canada

Vol. XVII

PUBLICATION OFFICE: TORONTO, NOVEMBER 15, 1923

No. 22

“Emco” Bath Fittings Now Come Assembled



For the convenience of the plumbing trade “Emco” bath fittings now come assembled, packed in individual boxes.

You are assured of perfect fitting and that you will have all the parts required when you are ready to instal a bath. All the hunting up and fitting of odd parts has been eliminated. You just need to take down a box from your shelves and you are ready.

Think what this means to you in a year. It will save you hours of skilled laborers’ time.

And the quality of the fittings remains the same, highly polished, backed by the “Emco” guarantee, a handsome set for any bath.

Your jobber now has the “Emco” bath fittings in one individual box, or write us.

Empire Brass Manufacturing Co., Limited

London and Toronto, Canada



“PUSSYFOOT”

Stands out prominently as superior to all other

Closet Tanks **The New Patent Ballcock**

with the name cast on the large Chamber finds favor everywhere because of its Silence, Rapid Action and Simple Mechanism.

The capacity of the “Pussyfoot” Tank insures strong, efficient flush.

It is manufactured from carefully selected material of the highest grade and finished in

OAK
MAHOGANY
WHITE

Every part of every tank thoroughly tested before leaving our plant.

Specify “Pussyfoot” when ordering.
Stocked by every Jobber.



THE CANADA METAL COMPANY
LIMITED

Montreal Hamilton TORONTO Winnipeg Vancouver

SHANKS'

White Glazed Vitreous China Lavatories

The "Paragon"
No. 4684



Sizes—22x27, 21x24

The "Albany"
No. 4687



Sizes—22x27, 21x24

Shanks' "Paragon" and "Albany" Lavatories are made in the highest quality Non-absorbent Vitreous China. Several hundred were recently installed in one of Canada's leading hotels—every lavatory perfect—not one reject.

The designs shown are supplied with hooded overflow or open slanted overflow, also with anti-splash rim or plain bowl.

Shanks' "Paragon" and "Albany" Lavatories are ideal for private residences, apartments, and hotels.

It pays to Display Shanks' Lavatories in Your Show-room

Most Jobbers carry Shanks' Pedestal, Leg, and Wall Lavatories in stock. If your jobber has not yet stocked them he can get prompt shipment, either import or from emergency stock carried at Toronto.

AGENTS:

W. H. CUNNINGHAM & HILL Limited

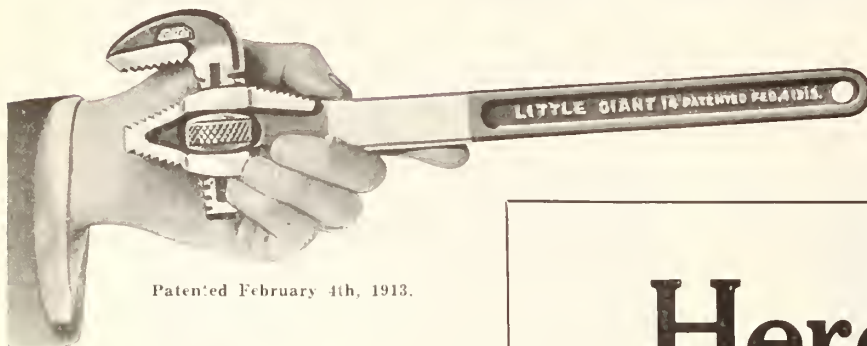
269 West Richmond Street, Toronto

For British Columbia:

Alcock, Downing & Wright, Limited

162 Water St., Vancouver, B.C.

THE *Little Giant* PIPE WRENCH



Patented February 4th, 1913.



*Simpler
Stronger
Lasts
Longer*

**ONLY
THREE
PARTS**

Write for Circular

Here It Is!

The very wrench you have **needed**—but perhaps have yet to realize that need! For you to “feel” the **Little Giant** in your hand; use it on the “tough” jobs; get into the “tight” places with it to find out how much you have **needed** its light weight, extra strength and handiness on the job.

Just like a projection of the hand and arm to get into holes and corners—with a grip like a vise but takes hold and lets go as quickly and easily as pliers.

The **Little Giant** is made of the best drop-forged heat treated steel, correctly proportioned and with just three parts—all practically indestructible. Still it is lighter and easier to carry around than other wrenches are.

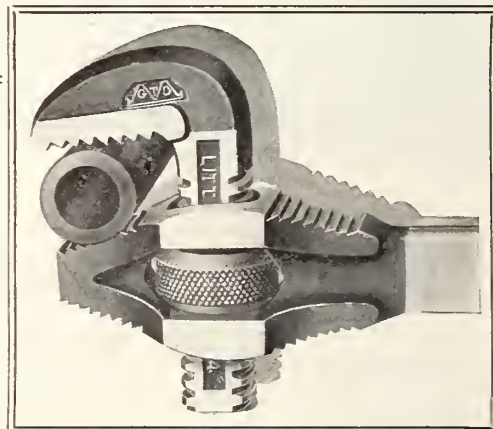
Note the different sets of teeth on the reinforced head. These increase the **Little Giant's** adaptability and double its useful life.

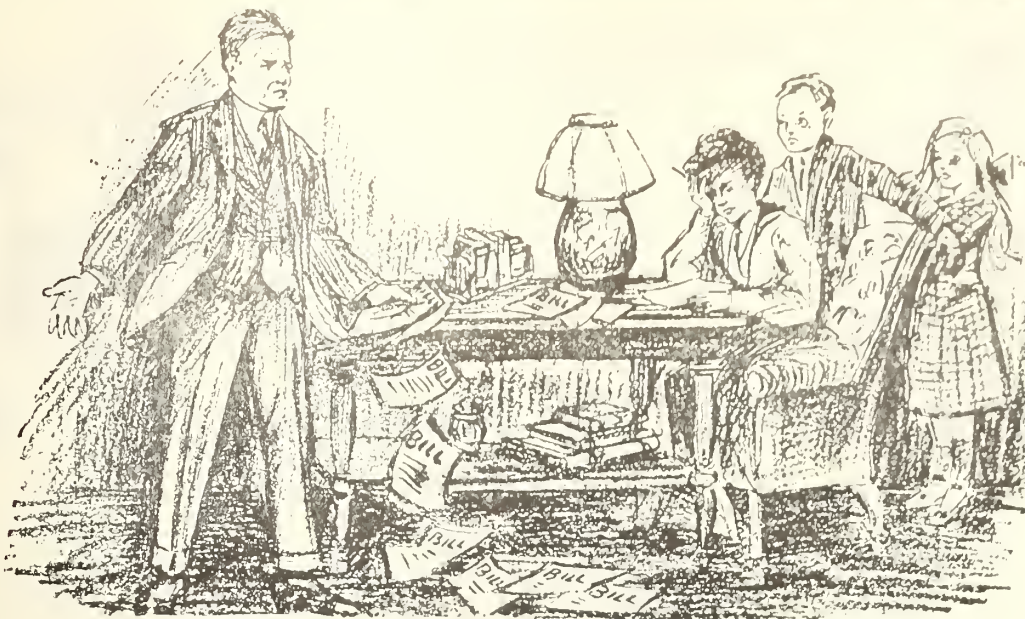
Ask your regular dealer for **Little Giant** Pipe Wrenches in sizes you wish. If he does not have them, write direct to us. Positively guaranteed. Order now.



GTD

Screw Plates, Taps, Dies, Reamers, Gages,
Pipe Tools, Twist Drills, Machine Tools.





“’Twas Ever Thus”

Busier than a one armed paper hanger, hardly time to eat or sleep but never enough money on hand to meet promptly the bills and drafts that flow in from all corners. It's the same old story, That MAD DESIRE for volume, anything to get a job away from the other fellow, with little thought of Overhead or Profit. No wonder 97% of the Sanitary Engineers in the Country fail to make a success of their business.

Here's the Trouble

There is entirely too much guesswork. Most of the trade guess at Overhead Expense, guess at Profits, guess at Quotations, guess they will come out all right. They have no definite businesslike policy of making their charges or tendering on jobs with the result that about 80% of the plumbing and heating work in Canada to-day is being done at cost or less.

The Solution

The plumbing and heating business is no different from any other business. The prices received for goods and services must be sufficient to cover Costs, Overhead Expense and Profits. But, the average Sanitary Engineer has neither the time nor the facilities for keeping an accurate up-to-date RESALE PRICE LIST on the 3000 items in every day use and the Henderson Business Service is an outgrowth of this condition.

We Guarantee Your Profits

No matter where you are located, whether your business be large or small we will undertake to guarantee you a profit on every article sold and every job installed. We are doing it for others and can do it for you and the cost of our service is the price of a cigar a day.

At Least Investigate →

Mail This To-day →

Henderson Business Service Ltd.

Box 123
Farmers Bldg.

Brantford

Ontario

Henderson Business Service, Ltd.,
Box 123, Brantford, Ont.

Explain your service in detail

Name.....

Address.....

City.....

No obligation.



Removing the Coils

Ruud Tank Heater Coils are easily removed. No brazed joints—coils are attached to brass union manifolds outside of heater by ground joint coupling.



Installing the Ruud

Two unions, two pipe cuts and four pipe threadings are saved by the detachable union manifold construction of a Ruud.



Removing the Burner

The Ruud Tank Heater Burner is mounted on the machined end of a mixer inserted through the heater base. A slight turn disengages the mixer from burner. Both can be removed in a second.

RUUD TANK HEATERS

Save Installation and Maintenance Expense

THE time and labor saved on installation and maintenance make your Ruud Tank Heater business profitable.

The Ruud was designed and built with the dealer's problems in mind. The greater part of the installation work is done in our factory.

In operation the Ruud is quick and

efficient. No heavy castings inside the heater to impede quick heating. Coils are joined to union manifolds outside of the heater—nothing in the heat zone but copper coil heating surface.

Let the Ruud multiply your Tank Heater sales, subtract from your overhead expense—and add to your net profit.

Ask for prices and terms.

Ruud Manufacturing Company

474 Bathurst Street

- - - Toronto, Ontario

Together, We Can Solve Any Heating Problem

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Gurney economy and efficiency are an old story to you practical heating engi-

neers. But I wonder if you keep as fully posted as you might, concerning the elasticity of Gurney Heating Systems? That's a trump card, when comparisons are being made.

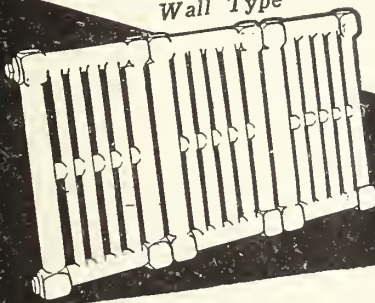
Let me suggest, right here, that you write me personally whenever you bump up against a hard heating problem. An exchange of ideas will do us both good. That's part of the Gurney Service that backs up Gurney Boilers and Radiators.

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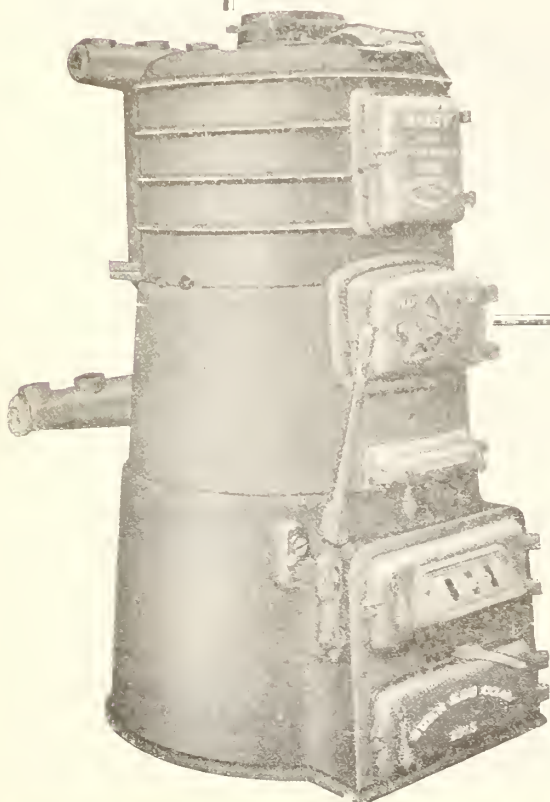
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SANITARY ENGINEER PLUMBER AND STEAMFITTER OF CANADA

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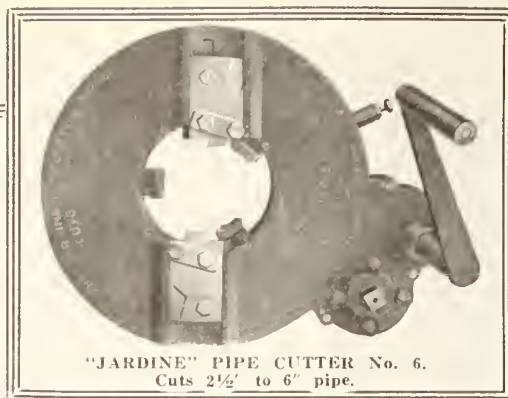
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No. 22

Progress in Standardization to Reduce Costs of Plumbing Business

Certain Sizes and Tappings Decided Upon in Connection With Standardization of Range Boilers, Pressure Tanks, etc.—Has Endorsement of Most Manufacturers—Change Method of Measuring Boilers

EDITOR'S NOTE:—At this time when the subject of costs is receiving so much attention standardization of equipment handled in the plumbing and heating industry becomes of much importance. Such standardization has done much to lower costs in many other industries through reducing the investment necessary to carry complete stocks. Some time ago standardization of laundry trays was reported. The latest action of the Simplification Bureau of the U. S. Dep't of Commerce is the standardization of range boiler sizes and tappings. This is outlined fully in the following:—

THE NEW standards of tappings and sizes for range boilers as adopted by manufacturers representing 90 per cent. of the total tonnage of range boilers, at a meeting arranged by the Simplification Bureau of the U. S. Dep't of Commerce are as follows:—

Tappings:—Standard tappings for all range boilers to be five (5) 1-in. tappings; two in top of boiler; two in side of boiler vertically over another, one of which shall be 6 in. from top of boiler and the other 6 in. from bottom of boiler; one tapping in bottom of boiler. Construction of range boilers with this style of tapping to begin at once and the universal use of this type of tapping to become effective not later than July 1, 1924.

Size of range boilers:—The following sizes were adopted as being the ones which will hereafter constitute regular stock sizes manufactured:—

12" x 36" or 18 gallon	16" x 60" or 52 gallon
12" x 48" or 24 "	18" x 60" or 66 "
12" x 60" or 30 "	20" x 60" or 82 "
14" x 48" or 32 "	22" x 60" or 100 "
14" x 60" or 40 "	24" x 60" or 120 "
16" x 48" or 42 "	24" x 72" or 144 "
	24" x 96" or 192 "

All sizes other than these will immediately be discontinued and when orders will be handled as calling for special design. All measurements given are based on inside diameters and length of sheet used in making the boiler.

Expansion tanks:—The following were adopted as the standard and only sizes of expansion tanks to be regularly manufactured:—

12" x 20" or 10 gallon	16" x 30" or 26 gallon
12" x 30" or 15 "	16" x 36" or 32 "
14" x 30" or 20 "	16" x 48" or 42 "

Also that the regular tappings for all expansion tanks be 13½ in. on centres which will allow of standardizing on a 12 in. gauge glass. It was further resolved to discontinue manufacturing the "short size" (e.g. 12 x 58) boiler.

This movement for the simplification of the variety of sizes and standardization of design and tappings of range boilers has the endorsement of all the prominent manufacturers of range boilers, the government departments, the standardization committees of plumbing and heating and supply associations.

Among the more responsible manufacturers of range boilers there has been the practice for some years of using inside diameter and length of sheet as the basis of measurement of range boilers. By some other manufacturers the measurements given have been outside diameters and in some cases extreme dimensions over all. Under the new standards all dimensions are to be given as per inside diameter and length of sheet as illustrated in Fig. 1.

All range boilers not conforming to the standard sizes as adopted will be considered over size or under size as the case may be and should carry a like differential in price. Over size boilers can be considered as worth the maximum of price set for the standard of size and quality under which it is sold. The under size boilers, in a similar manner, being so made for the purpose of skimping material, should likewise be considered as worth less than boilers of standard size, according to the now approved standard method of measurement.

This is because with the standard sizes of boilers as determined upon by the boiler manufacturers in session, and herewith given, the manufacturers can make these various sizes of boilers with the minimum of waste from standard stock sheets. Any appreciable variation in measurement is therefore unwarranted.

In Fig. 2, is shown a typical connection of gas water heater with a range boiler tapped according to the new standard of practice. This design was submitted by R. T. Rock of Bridgeport, Conn., member of the Standardization Committee of the National Association of Master Plumbers. This typical connection has the approval of the National Association of Master Plumbers. As shown, it also provides for connections to range water back, likewise, for connection to laundry tank heater in such manner that the most rapid circulation will be insured and short circuits prevented.

Loyal Support Should Be Given Manufacturers

"This step in simplification and standardization by range boiler manufacturers is a sincere endeavor to serve the public most efficiently and economically. Cutting out, as it does, over 100 varieties of range

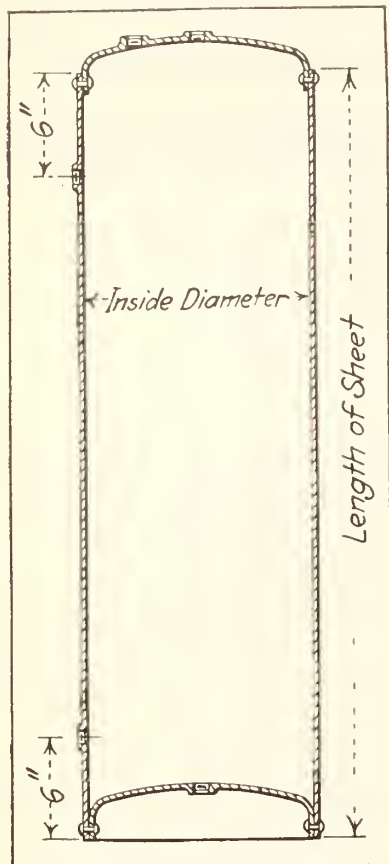


Fig. 1. Sketch showing how, by new standard of practice, dimensions of range boilers are to be given as per inside diameter and length of sheet.

boilers, the stocks required to be carried by contractors and jobbers will be materially reduced and, likewise, the manufacturing cost will be lessened. Therefore, the industry and the public will be benefited because of the standardization," says Sanitary and Heating Engineer.

"However, like all changes of this kind, in various communities there will be those manufacturers who will withhold their support in order to get the business incident to supplying the demand for the old type (single side tapping) boilers.

The Influence of the Sanitary Contractor

"Since this movement to standardize range boilers has such universal endorsement, the sizes and methods of tappings as adopted will become standard practice for all manufacturers. It is to the advantage of the public and the sanitary industry that they should. The quicker—the better. Yet—withal, the influence of the sanitary con-

tractor will be most important in determining the length of time required to put this simplification and standardization as adopted, into effect.

"The influence of all manufacturers who continue to manufacture the old style (single side tapping) range boilers will be, it is said, to postpone the benefits to be had from the standardized range boiler as a universal product. It is therefore, only too evident that every time an old style (single side tapping) range boiler is ordered, moral and financial support is being given to those who, in most cases, from purely selfish motives are delaying the effectiveness and benefits of standardization. Since sanitary contractors purchase practically all the output of range boilers, it is

likewise evident that they are a dominant factor in determining the speed with which standardization, in this instance, becomes effective.

"It cannot be too strongly urged that the industry give this movement its loyal support. To do this it is necessary, when ordering range boilers, to specify that boilers shall have the new standard tappings and of sizes as simplified. To order or accept boilers of other design after June 1, 1924, is to countenance the efforts of some to profit at the expense of the sanitary industry and the public."

At the preliminary meeting of the boiler manufacturers, representatives of gas water heaters and of the U. S. Chamber of Commerce and the Department of Commerce, held on October 29, a schedule of sizes and tappings for

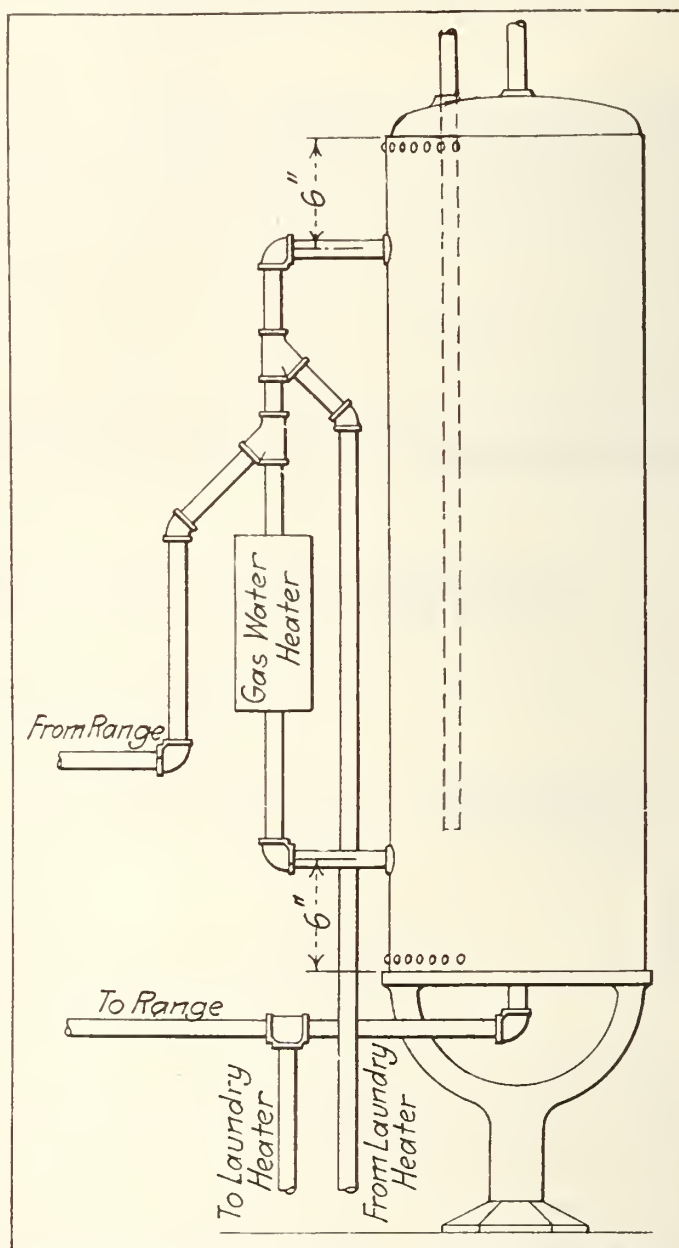


Fig. 2. Typical connection to range boiler tapped with two outlets on side. Submitted by member of Standardization Committee, National Assn. of Master Plumbers.

pneumatic tanks and storage tanks were adopted as per the schedule given in Fig. 3.

Also the following sizes were adopted as standard for combustion boilers and gas water heaters:

No. 18—12x36—11 gallons, allowance being made for centre flue.

No. 24—12x46—16 gallons, allowance being made for centre flue.

No. 30—14x48—22 gallons, allowance being made for centre flue.

No. 40—16x48—20 gallons, allowance being made for centre flue.

20x48—45 gallons, allowance being made for centre flue.

It was further agreed, "that all side outlets be eliminated except for thermostatic control, this fixture being special and of such a variety of design that we are rather at a loss for further suggestion toward standardization."

On motion, duly carried, it was unanimously voted to continue as a committee of the whole, the manufacturers assembled to be convened by the chairman for the purpose of effecting the achievement of the standards of practice as adopted by the conference and pledged by the manufacturers present. It was further voted that the 16x48 size, because of its evident increasing popularity with gas water heater manufacturers, be advertised by them at its actual capacity (viz. 42 gallons) rather than call it No. 18 which confuses it with the current standard 18 gallon range boiler.

All the manufacturers present announced their intention of proceeding at once to manufacture boilers according to the new standards of tapping and sizes.

CONTRACTS AWARDED

Toronto.—W. D. Butt, 33 Gwynne Ave., has the contract for heating and plumbing for \$10,000 duplex residence at Patterson and Glendale Aves.

Toronto.—P. Reading, 71 Marjory Ave., has the plumbing contract and the T. Eaton Co. the heating contract on three residences on Glenmount Park Rd., being built by Westwater & Sharp.

Toronto.—Mason & Allen, 400 Morley Ave., have the heating contract on three pair residences, \$18,000, being built on Poulton Ave. for J. Murray.

Toronto.—W. A. Brown, 331 Georgia St., has the plumbing contract and St. Catharines, Ont.—Bowman Bros. have the heating and plumbing contracts for \$6,000 residence being built on Ontario St.

Truro, N.S.—F. Dexter & Co. has the plumbing contract and C. F. Fox & Co. the heating contract on F. W. Armstrong's \$5,000 residence on Duke St.

Toronto.—Harry W. Rushby, 219 Wychwood Ave., has the contract for plumbing and W. C. Weeks, 4 Bird Ave., contract for heating in connection with three detached bungalows, \$16,500, on Wanless Ave.

Toronto.—H. J. Derrick, 47 Woolfrey Ave., has the contract for plumbing, and Parker & Ryan the contract for heating on two pair residences, \$8,000 pair, on Hunter Ave.

Bowmanville, Ont. Greenaway & Elliott have the heating and plumbing contracts on \$7,500 residence being built on Scugog St. for W. H. Lyon.

Toronto.—Belyea Bros., 1375 Bathurst St., have the heating and plumbing contracts for \$9,500 residence and garage on Laurier Ave.

Weston, Ont.—W. A. Moffatt, 86 Don Esplanade, Toronto, has the roofing and sheet metal contracts on the \$40,000 telephone exchange.

Toronto.—R. Reading, 14 Arundel Ave., has the plumbing contract and R. M. Leslie, 10 Bungalow Rd., the heating contract for three stores and apartments on Danforth Ave., near Caithness Ave.

Toronto.—Wright Bros. have the plumbing contract for the \$160,000 substation for the Toronto Electric Commissioners, Danforth Ave. and Morton Rd.

Toronto.—Jas. Downing, Jr., 68 Lappin Ave., has the plumbing contract and George Davis, 37 Boon Ave., the heating contract on one pair residence, \$7,000 each, on Lappin Ave.

Toronto.—J. Ritchie, 851 Logan Ave., has the plumbing contract and R. M. Leslie, 10 Bungalow Rd., the heating contract for \$9,000 store and apartment at 126 Danforth Ave.

Esquesing, Ont.—Mechanical Trades Co., Ltd., Toronto, have the contract for heating and plumbing of \$25,000 residence and greenhouse for Dr. Beatty, R. R. No. 4, Aston, Ont.

Port Hope, Ont.—Garnet & Sons, Port Hope, have been awarded the contract for heating and plumbing for the new telephone exchange to be built here.

Weston, Ont.—Keyes & Bull, Weston, have been awarded the heating and plumbing contracts for the new \$40,000 telephone exchange on Mill St.

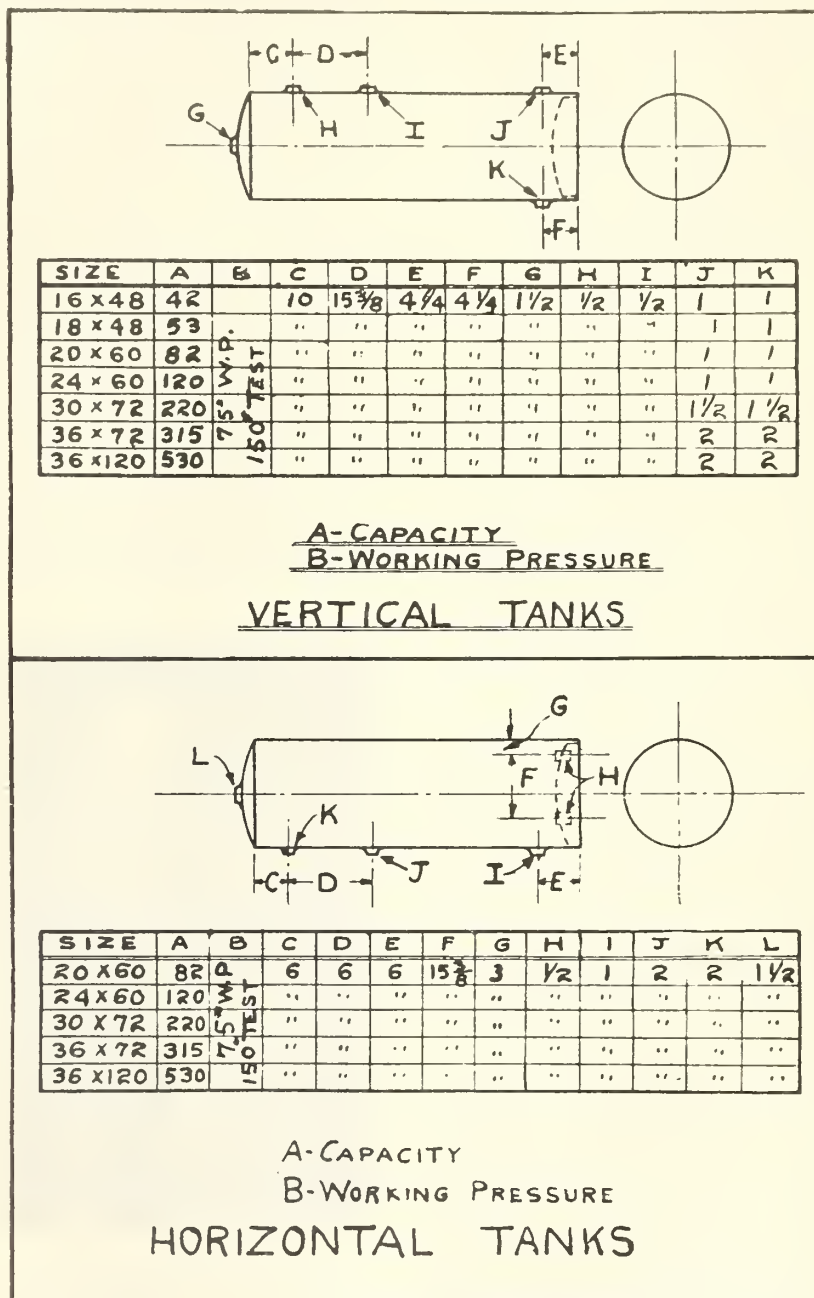


Fig. 3. New schedule of sizes and tappings for pneumatic tanks and storage tanks.

Danger of Small Capacity Tanks in Water Pressure Systems

Frequently Pipes Begin to Leak, Ball Cocks in Closet Tanks are Damaged and Other Troubles Arise With Pressure Systems, For no Apparent Reason—Expansion of Water in Range Boiler and Insufficient Pressure Tank Capacity Often the Cause

Address by MARTIN J. QUINN, President National Equipment Co., Toronto, before Hamilton Sanitary Engineers' Social Club

HAMILTON.—At the first regular meeting of the season of the Hamilton Sanitary Engineers' Club held on Wednesday evening at the Arcade, Martin J. Quinn, president of the National Equipment Co., Toronto, gave a very interesting and practical address on one or two phases of water system installation.

In introducing the speaker, Chairman C. F. Rogers, local manager of the Standard Sanitary Mfg. Co., referred to Mr. Quinn's early associations in connection with Government and other work, and pointing out incidentally that he was the one who installed the first Hydro Pneumatic water supply system in the town of Oakville, about seventeen years ago.

Mr. Quinn's address was as follows:—

If I came to talk to you about hot water heating systems, and told you that the difference between the weight of a column of hot and a column of cold water was the sole motive power that caused the water to circulate throughout the system, you would perhaps ask me to tell you something new. It is something you all know. If you did not know that this slight difference in the weight of the two columns was the entire basis of the success of such a system, you would not understand the need for careful grading, the prevention of air locks, and the use of pipes of sufficient calibre to reduce friction to a minimum, and it is easy to see how anyone unfamiliar with this basic principle would be almost certain to experience failure, in even so simple a construction as a small hot water heating unit.

The Suction Line

Now in considering the installation of a pump, it is of equal importance that we should understand the basic physical conditions that, as in the case of hot water heating, are responsible for either success or failure, and it is my intention to deal this evening with but a single phase of this kind of work, namely the installation of a suction line.

Though the principles involved are simple, we still find that the majority of men engaged in the business get more or less of a "jolt" when they hear the statement made that a pump does not actually suck water through the suction line, and it is failure to clearly understand what actually happens in this line when a pump is in operation, that produces a very large percentage of the pump troubles encountered. No part of the system requires as careful attention during its installation as the suction line, and frequently no part gets less.

Now, what actually happens when a pump connected to a suction line is put in operation?

For a complete understanding of the physics of the case we must remember that we exist in an atmosphere having a consid-

erable pressure, varying with the altitude above sea level. This pressure is created largely in the same way that pressure on the bricks of a building is produced, those nearest the foundation supporting a much greater weight or pressure than those near the top. In other words, the nearer we are to the sea, the higher is the bank of air, and consequently the greater is the pressure per square inch, and at sea level this pressure is approximately fifteen pounds.

Inversely, the higher we go in the mountains the less becomes the weight of air, and the consequent pressure to the square inch. Now, as the law of gases and fluids is that the pressure is equal in all directions, it follows that when a pump is put in operation, and a portion of the air is drawn out of the suction line, a partial vacuum is created in the latter, and the pressure downward on the surface of the water in the well will force the water up into the suction line to exactly balance whatever degree of vacuum has been obtained, and as the pump continues to operate and expel the air, thus creating vacuum, the external pressure will continue to make the water follow this vacuum right into the valves of the pump, and once through the valves, the water then is pushed by mechanical force to any distance or any height or pressure, depending upon the power of the pump and the amount of energy exerted.



MARTIN J. QUINN

President National Equipment Co.,
Toronto.

It will be seen, therefore, that as the elevation of water on the suction side of the pump depends entirely upon atmospheric pressure, that no pump, no matter how expensive or well built, or no matter by what amount of power operated, can set up a condition that will cause water to rise beyond the height arbitrarily fixed by the atmospheric pressure, at the altitude at which the pump is installed. Indeed no pump has ever been designed that will produce a perfect vacuum, and perhaps the nearest approach we have in commercial practice to that condition is in the manufacture of electric light bulbs, where the entire absence of air is of prime necessity, but even here, and with the most perfect appliances, a complete vacuum has never yet been produced.

Now, if we have an atmospheric pressure of fifteen pounds to the square inch, attempting to force its way in at every joint of the suction line, and if a vulnerable point exists and the air is forced in under this pressure, it will be seen at once that the vacuum will be lost, and the pump will fail to deliver water.

It makes all the difference in the world where a leak exists; for example, if a small leak were present at a point say two inches above the water level in the well, it would have a very much less serious effect than if it existed at a point much higher up, and close to the pump, for the reason that in the first instance the difference in water level, namely two inches, is so small as to form scarcely any resistance, but with the leak existing say twenty feet above the water, then the difference in pressure necessary to raise the water this twenty feet is so great that the atmosphere would be forced in in such quantities as to entirely break the vacuum.

Size of Plunger Important

Another feature that has a considerable bearing upon the effect of minor leaks in a suction line is the size of the plunger, or in other words, the displacement capacity of the pump.

A small pump of the type usually used in domestic installations, having a plunger of perhaps not more than one inch diameter, would naturally be much more seriously affected than would a plunger of four or five inches in diameter, as that in the latter case. While a small air leak would naturally affect the pump to the extent of a moderate percentage of its total displacement, it would perhaps prove fatal to the operation of the smaller pump.

I believe that ninety per cent. of all pump troubles are due to carelessness in the installation of the suction line, and this lack of care if manifested by the presence of leaks at the joints, or of dirt left within the line that will subsequently be drawn up

under the valves and keep them off their seats.

As to the presence of foreign matter under pump valves, it may be enlightening when I tell you that actual tests made with more than one type of small domestic house pumps, indicated that the valves when in operation do not rise more than about one thirty-second of an inch from their seats, so that it is easy to see that if a little paint or scale or sand remains on these valve seats, that the water displaced by the plunger will simply pass back and forth through the valves in this condition, and will not be discharged from the pump at all.

As indicating the lack of thought by some plumbers regarding the great importance of this phase of pump installation, I recall a personal inspection of a small pump a short time ago, which was not giving a satisfactory account of itself, but for which condition, after carefully questioning the plumber, I was unable to formulate any reasonable theory.

Took Out Pieces of Granite

When this pump was taken apart, I took out of the valves about a teaspoonful of small pieces of granite which had been washed down into the cistern from a certain type of patent roofing. These particles were about the size of the sulphur end of a small match, and turning to the plumber I said, "You told me that you had examined the valves repeatedly, and the seats were always perfectly clean," and his reply was, "Well we have pumped about a painful of that stuff, but I did not think that small pieces like that mattered much."

In most small pumps, a fine wire screen is placed to prevent just such matter from reaching the valves, but to such an extent has trouble developed, due to this screen choking up with paint used with extravagant liberality by the plumber, that manufacturers have been forced to use a very much coarser mesh, and this oftentimes allows foreign matter to get to the valves, which certainly should never reach them.

Let me warn you as strongly as I can against putting paint or "dope" inside the fittings of a suction line. Always put it on the threads of the pipe, so that when the latter is screwed into the fitting, the surplus will be squeezed off on the outside, instead of up into the fitting on the inside, and from there be carried right up into the screen, or through it on to the valves of the pump.

Rap on Pipe

Always rap each length of pipe used in the suction line with a hammer, to take out any loose scales, and thus make sure that when the pump goes into operation nothing but water will reach it.

We are often asked the question, "How large should the suction line be?" and our answer must always depend on the amount of water that is required per hour, and the length of line through which it must be forced. If, for example, a suction line is installed for the delivery of say twenty gallons per minute, it follows that always that amount can be forced through it without very materially increasing the frictional resistance, and as friction increases as the square of velocity, this becomes a mighty important factor.

Friction in a suction line in fact is the same as increasing the suction lift, so that while a line might be capable of delivering say twenty gallons per minute from a depth of 22 feet, it might be entirely inadequate in calibre if an attempt was made to deliver an additional volume of water, which would perhaps set up a resistance equal to a suction lift of another 20 feet.

As the frictional resistance depends on



W. BRITTAIN

Bloom & Brittain, Hamilton, Ont., elected vice-president of the Hamilton Sanitary Engineers' Social Club for the season 1923-24.

two factors, first the volume of water pumped per minute, and secondly the length of pipe through which it is discharged, it follows that the size of this pipe will be determined by first ascertaining the total lift, and then using a pipe of such internal capacity that will cut down the frictional resistance to within safe limits.

Fortunately, limit area in a discharge pipe is not so serious a matter, though it is of great importance, because it costs only half as much for current to deliver water at forty pounds pressure as it would to deliver the same volume of water against the same pressure, plus frictional resistance, due to small calibre and long length of pipe of perhaps another forty pounds.

It is important that the suction line should have a continuous rise from the foot valve until it enters the pump, but it sometimes happens that it is difficult to obtain these conditions, and that the line must be

HAMILTON S. E. S. DINNER SCHEDULE

The Sanitary Engineers' Social Club of Hamilton, the account of whose first regular meeting of the season will be found in this issue, have arranged an interesting program of dinner meetings for the coming months, to which they are extending a cordial invitation to anyone connected with the plumbing industry. The dates of the dinners, which are held in the Arcade Dining Hall from 6.15 to 8 p.m., are as follows:—

*November 21,
December 5,
December 19,
January 16,
February 13,
March 12
March 26,
April 9,
April 23.*

dropped after it enters the cellar, and before it reaches the pump.

In such a case be sure to make the point where it comes through the wall the very highest one. Fit this point with a tee instead of an elbow, and put a plug in the top of it, so that if there is any difficulty experienced in getting the "prime," due to an air lock in the high part of the pipe, this plug may be removed, and water slowly pumped in until all of the air is expelled through this high point, and the line entirely filled with water, when if a plug is put back tightly, the pump should go into operation at once.

You may be absolutely certain of one thing, that is that whether the pump you are using is of the highest quality, and most expensive type that you are able to buy, or cheap \$5.00 sink pump, if the plunger fits the cylinder snugly and the valves fit down closely and tightly on their seats, it will be certain to operate properly and successfully if the simple conditions demanded in the construction of the suction line have been fully complied with, and water is available within suction distance.

One of the difficulties with which we have frequently to contend is the plumber's sincere conviction that his suction line has been properly tested, and has proved to be tight, when all he is depending upon is the fact that before the pump was connected, the whole line had been filled with water, and had remained full for perhaps a day or two.

Not A Test

As a matter of fact, this constitutes no test at all.

Let us assume that a suction line leading from a pump is 50 feet long before it reaches the well, and then drops down twenty feet. If this line is filled with water, there will be a "head" at the foot valve equal to twenty feet, but on all of the horizontal part of the line this head may not be equal to more than six inches or less than one quarter of a pound, whereas as the pump is put into operation, the atmospheric pressure is capable of exerting itself against every joint to the extent of ten or fifteen pounds, or forty or fifty times as much pressure as that exerted during the "test."

The only safe way to test a suction line is with a good stiff interior pressure, never less than fifty pounds, and if air is used, go over every joint with soap suds, when rising bubbles will indicate a defect, and if water is used, be sure also to go over every joint, and leave the pressure on for an hour or two.

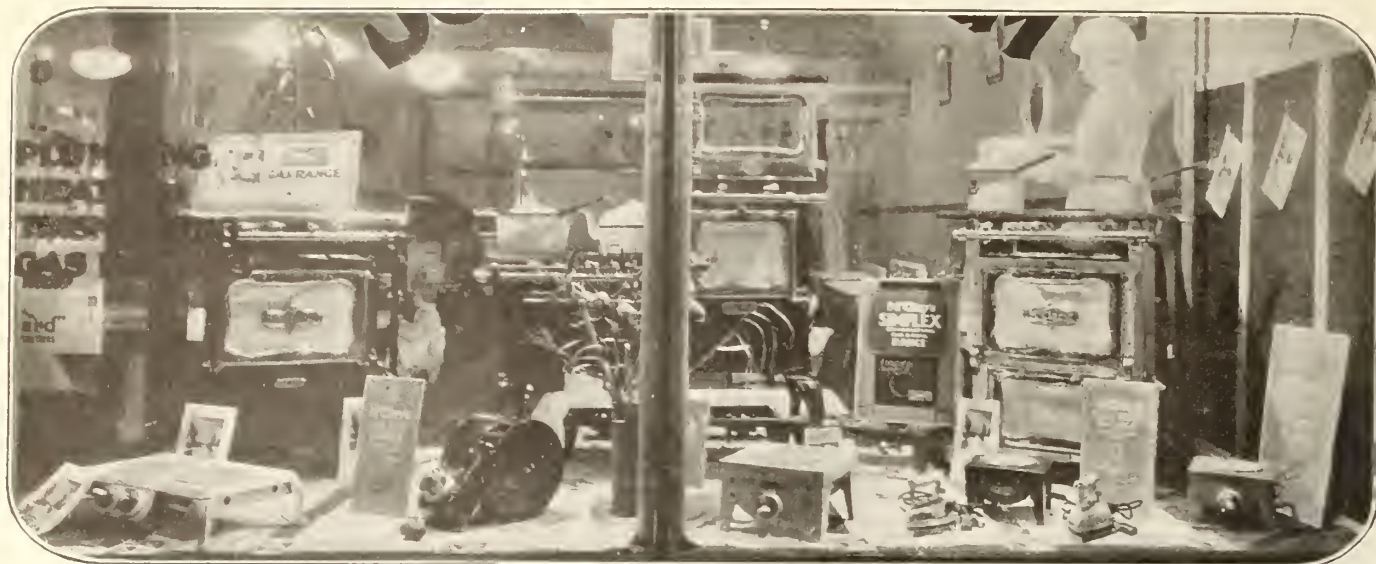
Do not be content with pumping up a suction line full of air say to fifty pounds pressure and watching the gauge for ten minutes. Air is such an elastic force, that a considerable amount may be escaping through one or more points, and if the suction line is of considerable length, the elastic volume will fail for quite a little while to show any change in gauge registration, and thus the plumber may be deceived.

Rarely Trouble In Pump

After you have put your pump in operation, and it does not "deliver the goods," then you must by a process of analysis, determine what the trouble is, and it will rarely be found in the pump itself, because all manufacturers test their equipments before they leave the factory.

It is possible, however, that the water left between the valves and the brass seats may in drying out, have caused these two units to stick together so tightly that the valves on the suction side cannot be drawn off their seats, and this is a condition that simply cannot be provided against.

If you have any suspicion that this has



Shop windows can be used to good advantage during the next month to boost the sale of heating equipment as Christmas gifts. Gas ranges, electric heaters and appliances all are well suited for gifts and suggested through a window trim should produce good results.

happened it is only necessary to carefully remove the valves, wipe them and the seats off and replace them, being sure that the valves are wet, so that they will make a better seal for the expulsion of air.

Having assured yourself that the valves are in good condition, the next step will be to ascertain whether any air leak exists, and perhaps the most simple way of doing this is to turn the discharge pipe from your pump down below the surface of a glass or pail full of water, and put the pump into operation. If bubbles continue to be discharged from the discharge line so submerged, you may be certain that air must be coming in at some point between the pump and the well.

If it is possible to pump any water, you may succeed in finally getting a good pressure pumped up in the tank, and then if the valves are removed from the pump, this tank pressure might be turned right back into the suction line, and indicate for you without further trouble, where the difficulty lies.

It is assumed of course that in the first instance you will make sure that plenty of water is available within suction distance, and that the foot valve is not submerged in sand.

When a system is put in operation ordinarily it is a good practice to pump enough air with the water to establish an air line about half way up the water glass, but of course while pumping air, the capacity of the pump for delivering water will be very materially diminished.

Just a word in conclusion about tanks. Be careful to avoid tanks of very small capacity. For example, there are four or five so-called tankless systems, which, however, fortunately have not been very extensively sold, but in many of these installations, plumbers have wondered why they are frequently called after a plumbing job has been installed, to repair leaks in the water pipes, and damaged ball cocks in the closet tanks, which for some unaccountable reason would start to leak.

The explanation will usually be found in the expansion of the water in the range boiler.

As is very well known, water will expand from thirty-two degrees up to the boiling point, about five per cent., and this in the case of a thirty gallon boiler is equal to one and a half gallons.

Now if you only have a four or five gallon tank, and indeed there are such things on the market as one gallon tanks, where is this gallon and a half of water going to go? It is a pretty safe bet that some of it is going to come down through the ceilings of the house, and you are going to be called upon to foot the bill.

Big Increase in Pressure

To understand what tremendous strains are exerted by the mere expansion of water under such conditions, it will only be necessary to say that a boiler full of water with all valves closed off, expanding from 90 degrees to only 110 degrees, will increase an initial pressure of 75 pounds, up to about 270 pounds.

For that reason then, if for no other, use plenty of tank capacity. But there is another reason. Tell your customer about it. And that is that he can double or triple or quadruple the capacity of his system at an increased cost ranging from five to twenty dollars.

Speaking of tanks, we need not say that we confine our manufacture only to the extra heavy rivetted caulked joint type, which owing to their construction, we are able to guarantee for ten years, and while this type of construction is naturally the most expensive, it is nevertheless surprising that complete units, including such tank construction of liberal capacities are invariably lower priced than any foreign made competing types.

It will be a pleasure to me at some future time when the opportunity presents itself to discuss some other phases of what we consider an intensely interesting business, namely, the manufacture of water supply systems.

B. C. PIONEER DIES

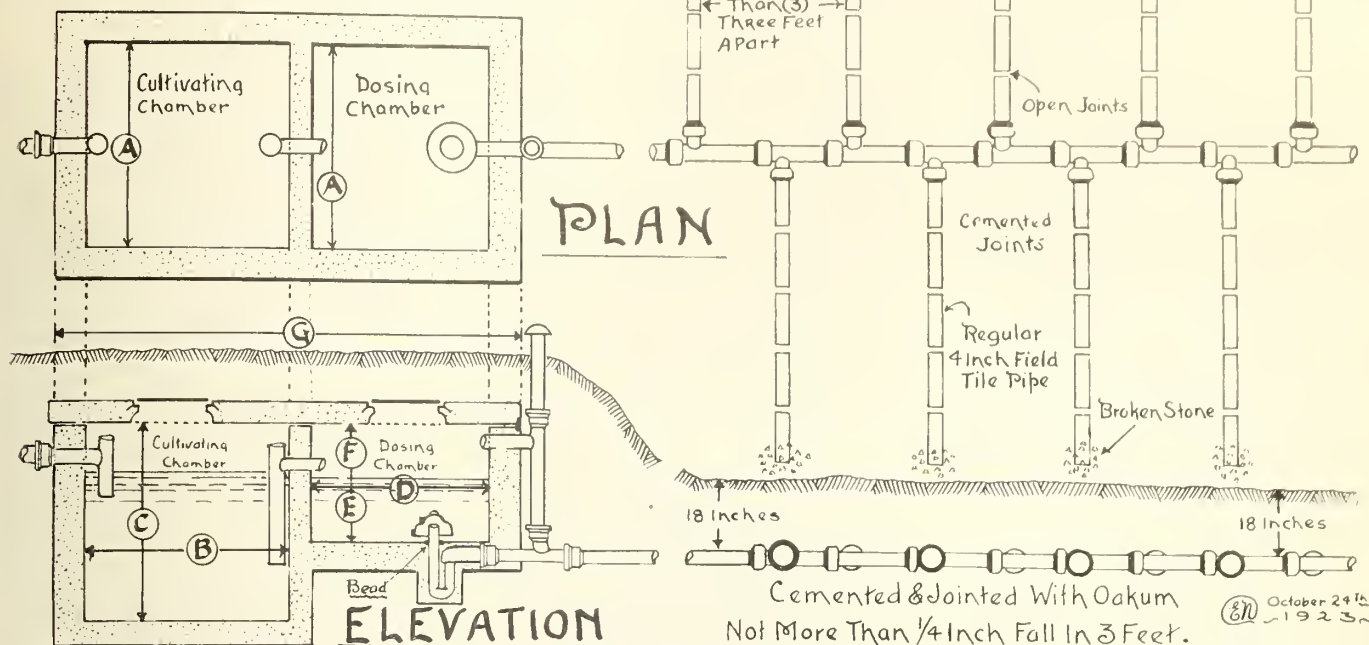
Andrew Gray, one of British Columbia's real pioneers, passed away at Victoria a few days ago. Some 53 years of his life had been spent in the province, the majority of them being years of industrial activity, the Victoria Machinery Depot, the Marine Iron Works, and the Albion Stove Works owing much to his enterprise and initiative.

Important Note

IN THE sewage disposal article which appeared in the last issue of Sanitary Engineer, the cut shown on opposite page appeared without the information which is given in the key below it in this issue. Without the key the illustration is not of much use for reference purposes and it is therefore reproduced again in this issue complete. The page with the references may be kept for frequent use in connection with septic tank jobs of various sizes.

PLANS AND SPECIFICATIONS FOR SEPTIC TANKS— And Sewage Disposal Systems For Rural Homes And Unsewered Districts.

All Hub Joints Must Be Cemented
All Open Joints Should Be Covered With Coarse
Gravel Broken Stone, Railway Cinder Etc.,
All Laterals Must Be At Least 3 Feet Apart—
Laid Level, $\frac{1}{4}$ Inch Opening, Not More Than
18 Inches Or Less Than 12 Inches Below Surface.



Don't Forget To Install The Syphon Perfectly Level, With Bead At Floor Of Dosing Chamber.
Always Prime The Syphon By Filling Both Legs With Water Before Placing Bell In Position.

Showing Details, Sizes and Measurements for Septic Tanks (See Plan and Elevation)

See Letters on Plans Above		A		B		C		D		E		F		G		Lineal Feet of Field Tile	Cubical Contents	Gallons Discharged
No. Persons		FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.	4in. Diameter	In Feet	Per Flush
Four	Persons	3	5	4	—	3	6	3	3	1	5	1	1	9	1	216	15 $\frac{3}{7}$	108
Six	— do —	4	—	5	—	3	6	5	—	1	5	1	1	11	10	324	23 $\frac{1}{7}$	162
Eight	— do —	4	—	6	—	3	6	6	6	1	5	1	1	14	4	432	30 $\frac{6}{7}$	216
Ten	— do —	5	6	5	6	3	6	6	—	1	5	1	1	13	4	540	38 $\frac{4}{7}$	270
Twelve	— do —	6	6	6	6	3	6	6	6	1	5	1	1	14	10	648	46 $\frac{2}{7}$	324

THE above figures given in table are based upon a daily allowance of 27 gallons of water per person.

Do not encourage the use of fewer lineal feet of field tile because the ground appears to be more porous than usual. Such ground is very advantageous and will ensure a more perfect disposal system as a rule.

Be sure and warn the occupants of a home against the use of any kind of anti-septic soaps or solutions where a sewage disposal system is in use. Such fluids and soaps will kill the friendly germs and result in creating the reverse of sanitary conditions.

Additional copies of this page can be procured on request.

Windows Help Overcome a Big Plumbing and Heating Business Problem

WINDOW Display No. 125 hardly needs description. All that is required is to arrange curtains with pedestals of varying height to carry the exhibited articles. Cover the floor of the window and these pedestals with soft cloth (tan Ramie cloth will do) allowed to lay loosely in natural folds.

Place the tools, for repair of a closet tank, on the floor of the window at the right—those for repair of a flush valve, at the left—in front of the pedestals on which you show the parts necessary for that class of repair. In the centre, exhibit the parts involved in a closet seat repair, and back of this, on its pedestal, a frame with a large card or poster.

Can't you see how this display in your window would create a real demand for better material and service on repairs; and help to end the "grief" arising out of trying to get fairly paid for such service?

Window Display No. 126 is a striking and very effective exhibit, to centre the attention of the passerby upon the advantages of automatic heat regulation. It also suggests a practical method for using display material which can be secured from most manufacturers of apparatus for heat and temperature control. Some of these manufacturers al-

ready have such display units assembled which they are willing to supply to heating contractors on terms and conditions which are very attractive. It is altogether probable that any of these manufacturers would be pleased to co-operate in this way with any heating contractor sufficiently interested to write requesting such service.

The display board shown on the high pedestal in the centre of the window, is arranged with clock, thermostat and motor in sight, on the front of the board with appropriate reading matter on the board explaining each part. There is an opening in the board, back of which is a slide that is fitted from one position to another, displaying different legends in each of the positions. This slide directs attention to the fact that when rooms are too warm, the automatic regulation closes drafts and opens check dampers; and that when rooms are too cool, the opposite action occurs.

The motor is properly connected up to the electric wiring lines in the show window or room; and a small lamp is included in the circuit, appearing just above the thermostat. By means of an interrupting switch the motor is caused to operate at short time intervals. Thus the slide on the back of the main display board is raised and lowered. Thereby

the two different legends on the slide are alternately brought to view through the space provided in the face of the display board.

In connection with the shifting of this slide, the lamp above the thermostat lights and goes out. By this simple device a large amount of interested attention is bound to be created.

The particular manufacturer whose display board we have used, or any other manufacturer of any heat regulating apparatus, will be glad to receive any inquiries concerning such a display outfit.

With the photograph to guide you, the arrangement of this display in your window is a very simple matter. It calls only for a pedestal of some sort at the rear centre of your window, of sufficient height to bring the centre of the display board opposite the eye level of a person on the sidewalk. Then at each side, toward the front of your window, place similar pedestals about one-half as high as the one just referred to. Cover the floor of your window and the pedestals with soft, light colored cloth, allowing it to fall in natural folds.

With screens or drapery of height sufficient to cut off any view of the interior of the store, provide a suitable background for the display.

(Continued on Page 29)



"Better to Forget to Put in a Bath Tub Than to Forget Overhead"

Large Volume of Business With Receding Price Tendencies Foretold by Frank Sutcliffe, President of John Wood Mfg. Co.—
Martin J. Quinn Emphasized Duty of Individual in Armistice Day Talk

A HIGHLY optimistic outlook for the future of the plumbing trade and business in particular, and for the future of the Dominion of Canada in general, was voiced by Frank Sutcliffe, president, the John Wood Mfg. Co., Conshohocken, Pa., and Toronto, Ont., who addressed the Live Wire Club, Toronto's recently-organized plumbing trade club, at their dinner in the Board of Trade rooms on Thursday.

Speaking from his personal observations, made during business trips which have carried him into all parts of Canada and the United States, Mr. Sutcliffe was emphatic in predicting for the trade an unprecedented volume of business during the year to come. Basing his predictions to a certain extent on what had already been accomplished, he stated that where a few years ago there were but 400,000 bathrooms in the United States, that last year equipment for 972,000 was manufactured and sold, the plumbing business of the United States representing \$36,000,000 and now being one of the biggest industries in the country.

"On top of these figures for last year," he added, "this year is again one of the best to date and next year will be even better from present indications. We are going ahead by educating the people on the health value of sanitation. Insurance statistics have shown that the average prolongation of life has been about ten years per person greater of late, much of the credit for this going to better sanitation.

Canada's Industries Solid

"In our product we have turned out in tanks and boilers this year, about 400,000 pieces. The growth of the industry is more than some of us can realize. While I have quoted largely from my observations in the United States, the same condition holds good in Canada. I know enough about your country through my several trips from coast to coast to know that your lumber, asbestos and farming industries are solid. The fundamentals are here and the time of development has arrived. The opportunities in this country will be greater than some think during the next decade.

"We are going to have a large volume of business and we are going to have receding prices because of the capacity of the factories and the keen competition. I do not believe there will be

any violent fluctuations, but that conditions will bring about a receding tendency.

"Of course, it will continue to be up to the individual to take advantage of the opportunities thus afforded him. I believe it better for a plumber to forget to put in a bathtub than to forget his overhead. He must be sure of his costs before he starts. If he does, there are so many opportunities that there will be nothing to stop him from going ahead.

"He will have to make himself known, but if he advertises, let the advertising



NORMAN SWANSTON
Former president, Ontario Society D., S. and H. E., and now member of the executive committee of the Live Wire Club.

be constructive. Let the other fellow monopolize the tricks. They're not worth while."

Armistice Day Message

Along an entirely different line, but equally forceful, was the Armistice Day message conveyed to the gathering by Martin J. Quinn, president National Equipment Co., Toronto, who carried his auditors back five years to the first Armistice Day, touching on the thoughts that had come to him at that time, of what Canada and Canadians would have to do to make the sacrifice of her soldiers more than a vain wasting of effort and life.

In his thoughts at that time, he had come to the conclusion that what was done along such lines would have to be done by the individual, and that of the many classes of individuals in Canada he could find none better fitted to carry

on independent constructive thought and deed than members of the plumbing trade, men who were trained to think and act independently from the very nature of their work.

"My thoughts along these lines," said Mr. Quinn, "convinced me that I want to be nothing better than a plumber, for I think there is nothing better than a plumber. Think of his importance in the great plan of things. Many other industries could cease to-morrow and with a slight re-adjustment of our mode of living, the loss would have little lasting effect, but let us awaken to-morrow and find that every man-made source of water supply and drainage had disappeared, imagine what it would mean in the lives of everyone.

"Too few of us give consideration to such angles and tend to minimize our own importance. As an example of what I mean, let us say you go to a doctor regarding some ailment. Before treating you the doctor will diagnose the case, then treat you accordingly. But, let the same doctor come to you and tell you that he wants certain equipment put in his house. You go ahead and put it in, never stopping to properly diagnose his case and suggesting equipment best suited to his needs. Most people outside the trade understand very little about what they should have and will welcome your advice, rather than to have to make their own selections in a somewhat blind fashion. Make suggestions, put in good jobs and you will inspire confidence and secure customers who will in turn be your best advertisers.

"As good citizens of this country we owe it to the manufacturers of the country to give them our support. No country can be truly great that sends across its borders the profits that should enrich its own people. It is the duty of every intelligent man to think before every act and come to the proper conclusion of the effect that act will have on his country."

Other items on the program included the reciting of the famous Cockney war poem "What the 'ell Bill" by George Baker and a vocal solo by Roy Belyea, who also acted as chairman of the meeting in the unavoidable absence of Major Laurie Anthes.

About eighty members of the plumbing trade were in attendance at the dinner, all details being well looked after by the committee.

Questions and Answers Regarding Plumbing and Heating Practice

Hard Water Causing Some Trouble

Trouble From This Cause in Hotel, Heated by Steam Boiler and Also in a Big Residence

Editor Sanitary Engineer: From time to time I am called into places to clear lime out of the water fronts and heaters used to heat water in range boilers. The water in our district is very hard and I believe if I knew of some real good remedy that would overcome the trouble, it would not be a matter of price that would prevent me from doing a good service to the people in my locality.

Just at the present time I have two jobs in mind, one in the hotel, which by the way, is heated by a steam boiler (low pressure) and the other is a big residence, where a 40 gallon boiler is used and a very large kitchen range.

Neither of these customers of mine would have any objections to paying for a fool-proof job, so if you can let me know how these jobs could be remedied, I would be very much obliged. I omitted to state that the hotel has a square sectional boiler in it.

Yours truly,

A. B. C.

Hard Water Trouble

The writer was out with a demonstration truck this summer and visited over 120 towns in Ontario and the above two cases were brought to his attention, and there are hundreds of similar conditions all over Canada; therefore, the replies

no doubt will interest many of our readers.

To overcome the trouble outlined in the above questions, the best way would be to adopt what is known as the indirect method of heating water. This can be done by using either hot water or steam as the heating medium. As a matter of fact, there are quite a number of specially designed indirect heaters that would do the work, but in both these cases the problems were solved in the following manner:

The hotel system is described where the square sectional boiler is illustrated. A range boiler fitted with a copper coil is slung up to the rafters or joists. In the sides and ends of the boiler, special tappings are made and the copper coil is supported with copper braces before the heads of the boiler were put in place. Such a heater can be made up by using a piece of large pipe, making up a copper coil, using flanges for the ends in place of ordering a special boiler.

The top pipe of the coil is connected to the steam header and the lower pipe of the coil to the return header. An air relief valve of large capacity would be the ideal fitting to use under these conditions. Then it will be seen that the water supply is connected to the bottom of the heater or horizontal boiler (as the case may be), while the hot water

supply to fixtures is noted by the word "flow," as well as the pipe which is shown at the top of the boiler.

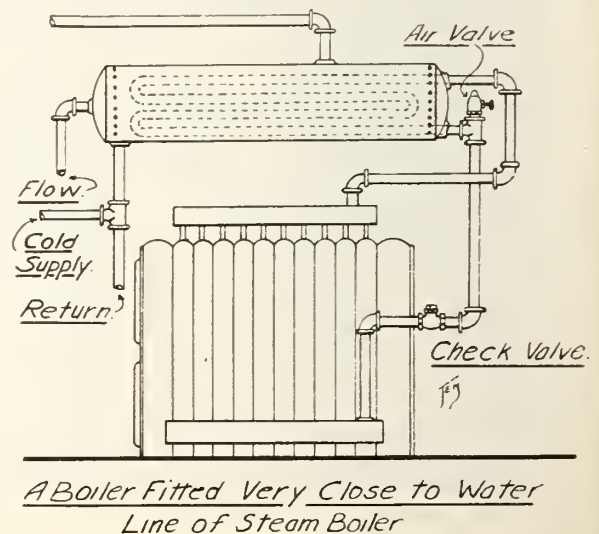
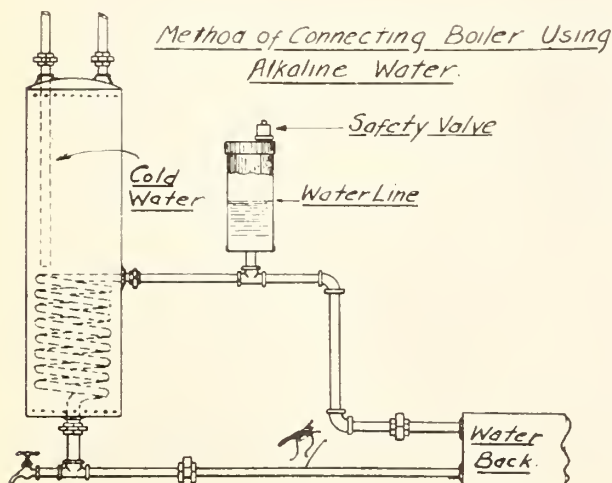
With the residence job a somewhat different method must be adopted, though the principle is the same. A similar heater (horizontal) could be made up, provided that the soft water receptacle could be installed higher up, say, in a room above, but by following out the details shown in the illustration, a good job can be done.

A 40 gallon range boiler made up with a copper coil is shown in the illustration. The coil is connected up in the regular way, that is, the side outlet, which is the top of the coil, is connected to the top of the range water-front, and the lower outlet of the coil is connected to the bottom tapping of the water-front, using metal to metal or other unions at the boiler.

Next, make up a small cylinder from a piece of 6 inch pipe, with caps or reducers for the ends. A small filling cap should also be provided in the top of the cylinder, and soft water poured into the cylinder until it is about half full. A small pop, or safety valve, would improve the job considerably, and if the water supply in the cylinder is attended to, no doubt the trouble with water choking up the pipes will be overcome altogether.

The length of the 6 inch pipe need not be more than 14 inches and the water only about a foot higher than the top loop of the coil. Water should be drawn off at the faucet under the range boiler at intervals of not less than once a week.

—Technical Editor.



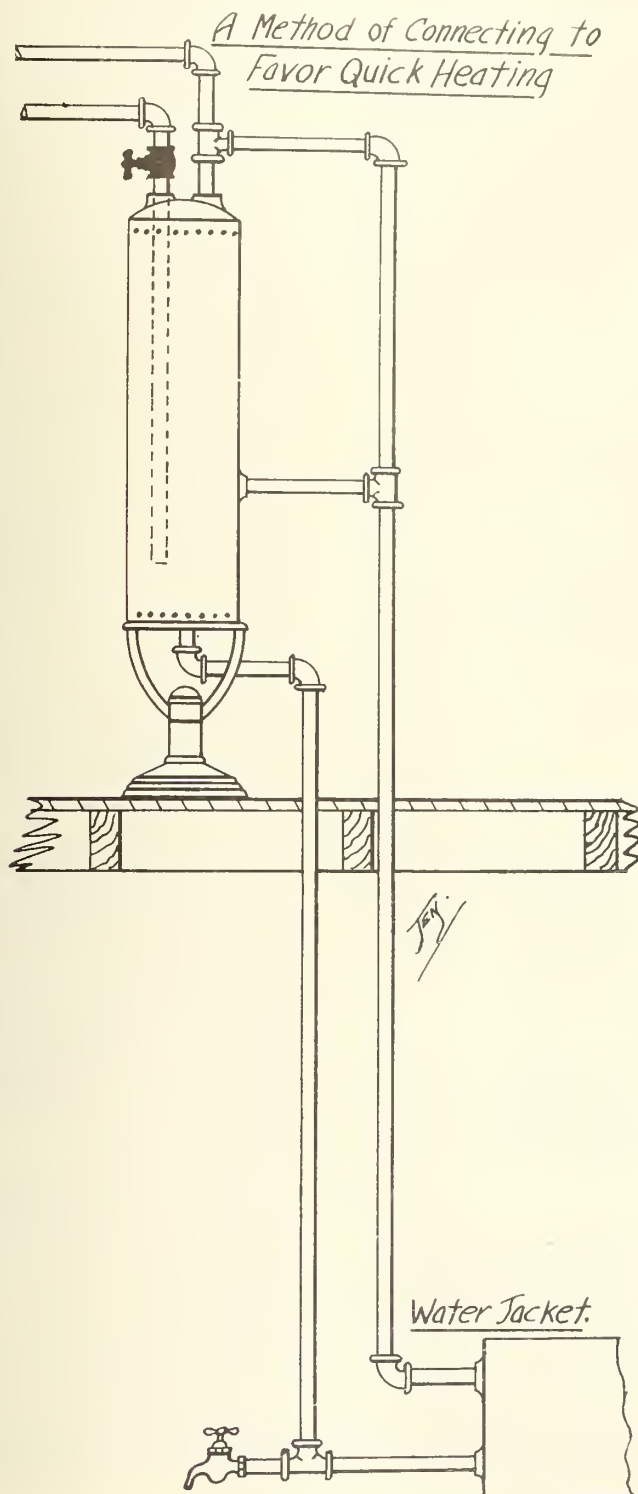
Water Heats Too Slowly in Range Boiler

Improving Such Systems Without Enlarging Either Water Jacket, Coil or Boiler

Editor Sanitary Engineer: I have a job to fix up where the water does not appear to heat quickly enough. The coil in the furnace is big enough, I am sure, and it has been cleaned out. So has the piping; but I think the conditions are somewhat out of the ordinary. The job is in a small hotel in the country. Very often the water is run off very quickly,

then, before the coil has time to heat the whole boiler full of water, another supply is needed by the roomers.

Could you suggest any way to improve the job? What size of piping would you advise? The boiler has 40 gallons capacity. The job works slow, winter or summer. In summer, when the furnace is out, a small jacket heater



put into commission. A reply to above will help.

Yours very truly,

R. J. P., Ontario.

The symptoms described in the above question lead one to think that both the coil and the jacket heater are too small, or it could also be that the range boiler too is not large enough.

However, it is no doubt possible to help circulation somewhat by connecting the boiler as shown in the accompanying illustration, and it would also improve the job if one inch pipe is used throughout. No doubt $\frac{3}{4}$ inch pipe is installed and if the run is a little too long, it is likely that would also retard the circulation.

The connection on the top of the range boiler should not be reduced, but kept full one inch size. The supply from the top of the tee could be reduced, of course. The writer has improved several jobs in the same manner as suggested, without enlarging either water jacket, coil or boiler.

Water should also be drawn off at the faucet in the basement quite often so as to keep the quantity of sediment from accumulating. This would very soon result in closing up the lower pipe and finally checking circulation at that point, and preventing the water from heating as readily as it ought to do when all the piping is kept clear and free from obstruction.—Technical editor.

* * *

HORRIGAN HEATING SYSTEM

Thomas Johnston Co., Ltd., Summer-side, P.E.I.—

We have a Horrigan expansion tank installed in a basement for a hot water heating system, instead of the ordinary gravity feed expansion tank. As the Horrigan system is in need of some repairs, we wish to have the name and address of the makers. Could you supply us with this information?

Answer:—This system is manufactured by the Horrigan Supply Co., 420 S. 4th Street, St. Joseph, Mo., U.S.A.

CONTRACTS AWARDED

Toronto.—J. Elliott, 98 Concord Ave., has the plumbing contract for \$8,500 residence on Weyburn Crescent.

Point Grey, B.C.—Barr & Anderson have the ventilating and heating contracts and Murray Bros. the plumbing contract on the \$750,000 science building for the University of B.C.

Port Arthur, Ont.—H. R. Sime, Port Arthur, has been awarded the heating contract and Purdy & Mansell, Ltd., Toronto, the plumbing contract on the \$175,000 court house being built here.

Quebec, P.Q.—Jobin & Paquet have been awarded the heating and plumbing contracts for the medicine school being built for the Seminary of Quebec.

Sandwich, Ont.—J. L. Seiber, Windsor, Ont., has the plumbing and heating contract on the \$12,000 residence being built on Partington Ave., for F. Prince, Windsor.

Heating and Ventilating Department

Induced Warm Air Circulation and Automatic Draft Control

While Not a Cure-all, Tests of 120 Installations Said to Have Proved That Induced Circulation and Automatic Control is Real Need

By M. C. HONEYWELL

IN PRESENTING the picture of the need for the benefits from induced warm air circulation, we will draw upon our practical experience during the past season. We have been very definitely impressed by the receptiveness of the warm air trade to induced circulation, by the ready acceptance of its apparent benefits by the owner prospect, and by the united enthusiasm of the dealer and of the owner wherever an installation has been made. This picture is based upon fairly close contact with both dealer and owner in approximately one hundred and twenty separate installations that operated during the winter of 1922-1923. We have no desire to spend our money in producing, advertising and selling instruments that cannot be honestly classified as heating necessities. To that end we watched closely these 120 installations to make sure that there was a genuine need for an induced warm air method or system and that definite tangible benefits were a result. Because of our close contact with these test installations we are more convinced than ever that there is a definite need, that definite benefits do result from, and that a definite market does exist for induced warm air circulation.

In our patent investigations made several years ago, we found traces of efforts along this line some 30 years back. And from that time down to the present, there have been haphazard attempts to evolve something along this line, but apparently there has never been any one concern concentrated upon the various problems until the past several years. The idea then is not new, but has been in men's minds for a long, long time.

Many Experiments in Past

Unless you have investigated the matter you would be amazed to know the number of owners and of dealers over the country, who have been experimenting with common desk fans and fans of all types and sizes in an endeavor to overcome certain conditions that exist in many warm air furnace installations. The fact that makeshifts have been used in considerable numbers seems to us to pretty definitely establish the fact that the need for induced circulation is recognized.

Warm air furnaces are installed in

all types and kinds of homes and are fired by all kinds and types of men and women. These are factors beyond the control of the furnace manufacturer, jobber and dealer, and yet factors that have a very direct bearing on the satisfaction delivered by the furnace.

In a straight gravity system, the size and spacing of the studding as fixed by the house builder, definitely controls the size of the wall stacks of the furnace man. The dealer probably has nothing to say about this factor—he simply takes what he finds and makes the best of it.

The location of the house, its exposure, the variability and intensity of the prevailing and of the occasional winds, all definitely affect the delivery of heat. And it is delivered heat, and that alone, that interests your customer. In reality the owner cares mighty little about the size or shape or material of any unit—he is greatly interested in what it accomplishes and if the results are satisfactory, he then confers upon the unit and upon its construction his whole hearted approval and recommendation.

The delivery of warm air (the thing your customer is interested in) depends upon circulation. Circulation in a straight gravity job depends upon many variables that are not subject to control and because they cannot be controlled, directly affect the degree of satisfaction experienced by the owner.

Automatic Control Assures Delivery of Warm Air

But add to the variable action of gravity flow, the positive direction of automatically controlled induced circulation and you are assured of warm air delivered in the rooms when it is wanted.

The winds may blow from the northwest or from the southwest or from any other direction, but with an automatically controlled fan, gently, but positively, delivering a definite volume of air through the flow pipes, your customer is certain of obtaining that which he intended to buy — delivered heat. Gravity is too slow, too uncertain, too unreliable under many conditions. Controlled positive circulation is certain, is reliable, is fast under all conditions.

Lower register temperatures are desired by all furnace manufacturers. Lower register temperatures mean lower heating chamber temperatures. But lower chamber temperatures mean fewer cubic feet of air per minute, delivered through any given size of flow pipe if gravity only supplies the circulation. Instead of 175 degrees to 190 degrees at the register face, a volume of air delivered at 140 degrees would be much better. It is a real problem, however, to get such a temperature and still deliver the number of B. t. u.'s required in the rooms without excessive piping and oversize furnaces under gravity circulation. On the other hand, a properly designed and controlled fan will increase the volume of warm air delivered by at least 100 per cent. Through induced circulation it is possible to obtain this much desired condition of lower register and heating chamber temperatures.

Aids Humidification

Through the lowering of these temperatures we deliver warm air with a greater moisture content and during the next few years a great deal of attention will be directed toward a study of ways and means of keeping the air of the home at the proper humidity. The medical fraternity all protest against the dryness of the air in our homes and induced circulation, when directed toward the reduction of high heating chamber and flow pipe temperatures, is a step toward the goal of proper humidification by keeping moisture in the air instead of driving it out through the excessive temperatures required for gravity circulation.

One of the chief causes of deterioration in a warm air furnace is the temperature to which the castings are constantly subjected. By materially increasing the velocity of the air passed over the outside faces of the castings, we wipe off the heat quicker and reduce materially the temperature of the casting, thereby prolonging to a decided degree, not only the life of these expensive heavy castings, but the life of all parts of the furnace casing.

By at least doubling the volume of air circulated, we thoroughly mix the air in both the heating chamber and in the rooms above. Because of the increased velocity, the temperature difference between the ceiling and the floor is very materially changed. Instead of finding an excessive temperature at the ceiling level, a fairly uniform temperature holds throughout the rooms and the heat wasted under a gravity system in uselessly heating the ceiling air, is made available, in the occupied levels of the room, through induced circulation.

In a warm air furnace operating with gravity circulation, a certain amount of coal must be burned to produce this circulation. From all information we can gather, this fuel, consumed solely to produce circulation and in no way contributing to the warmth of the house, except as it produces circulation, amounts to from 10 per cent. to 20 per cent. of the total fuel burned. Induced circulation removes the necessity for burning this fuel to produce the superheat that makes gravity circulation. This saving in fuel will pay for a reasonable, satisfactory, induced warm air method and make available its many advantages without costs, if a three to five year period is taken. Coal at \$10 to \$20, in many localities, a ton, is well worth saving.

Induced circulation, we believe to be a fine thing, but we also believe that unless the positive fan flow of the air is controlled and only permitted to operate when conditions in the furnace are favorable, there are some disadvantages to increasing the circulation beyond its natural gravity flow. To this end we have designed a Thermostat to operate in the warm air chamber of the furnace, and this thermostat controls a switch in the fan circuit; closing this electrical circuit whenever the air in the chamber is hot enough to be of heating value in the rooms and opening the electrical circuit whenever the air is too cool.

Automatic Control Important

Should the furnace fire be low for some reason, the air in the heating chamber probably will be at a comparatively low temperature and, therefore, of little heating value in the rooms of the home. Under these conditions we allow gravity to work as slowly as it will because our thermostat, as we call it, sensitive to temperature, opens the electrical fan circuit and the fan can not operate. Suppose the fan were permitted to operate at all times. Heating comfort, as we understand it, is largely a matter of feeling or sense. True that a thermometer is used to measure temperature, but we all recognize that a room at 65 degrees may be, so far as comfort is concerned, considerably cooler under certain conditions than it would be at the same temperature under other conditions. In the summer time we all use fans to keep cool. Not that the fan changes the room temperature one single degree, as measured by a thermometer, but because of the increased circulation of air and the consequent increase in the rate of evaporation from our bodies we feel cooler. Would not exactly the same thing hold true if a fan were permitted to increase the furnace air circulation when the air being circulated was not of sufficiently high temperature to be of heating value? We are very firmly of the opinion that induced circulation loses most of its advantages unless automatically controlled so that only air of heating value is positively delivered.

If induced circulation offers advantages, the fan must be so designed as to

lead itself to existing installation, as well as to new installations. The circulating instrument must be compact; the body must not offer interference to the free flow of air; the blades must not baffle circulation when the fan is idle; the motor must be totally inclosed to protect it from dust and dirt; oil reservoirs must be ample to perfectly lubricate the instrument over a reasonable period of time. And in order that existing furnace installations may be equipped, the installation must be simple and reasonable in price. The outfit should be so designed that it is not necessary to spend the customer's money in new boots or new piping, but can be easily mounted in existing cold air returns. By keeping the cost down, the market broadens in more than direct proportion.

Through induced circulation then we are able to assure positive circulation to all rooms in the house, regardless of weather conditions and to a certain extent, we can overcome handicaps or deficiencies in house construction that work against efficient and uniform circulation by gravity. Through induced circulation we are able to deliver the

additional volume of air that is necessary, if we are to reduce the yearly investment and maintenance cost of a warm air heating plant by materially increasing the years of its efficient service. Through induced circulation, we are able to deliver warm air at a considerably lower temperature than can be done by gravity and in so doing, we make available a portion of the much wanted humidity. And again, by thoroughly mixing the air because of increased velocity, we cut down the temperature difference between ceiling and floor levels. We decrease the fuel consumption, thereby more than providing for the initial cost and by thermostatically controlling the operation of the fan, we only use induced circulation when it should be used and never when it should not, all without the necessity of thought or action on the part of the house occupant.

I believe that the time is approaching when some system of induced circulation will be part of almost every warm air furnace installation. By its use, positive circulation can be assured to every room in a house and dealers delivered from troubles that have seemed

Getting a Report on Heating Prospects

INSPECTION REPORT

Name
Address
Date..... 192..

PLUMBING REPORT

Indicate Present Fixtures by <input type="checkbox"/>	Condition Good or Bad
Bath	
Shower	
Lavatory	
Closet	
Sink	
Laundry Tubs	
Bathroom Accessories	
Method of Heating Water	
Source of Water Supply	
Water System Pump Needed	
Remarks	

If you fill out this ticket properly it will give us a line on the needs of our customer. Every sale we make means more work for you.

Inspected by.....

HEATING REPORT

Method of Heating Used

Indicate Present Equipment by <input type="checkbox"/>	Condition Good or Bad
Heating Boiler	
Heat Regulator	
Temp. Regulator	
Radiator Shields	
Radiator Valves	
Air Valves	
Pipe Coverings	
Miscellaneous Equipment	
Built-in Vacuum Cleaner	
Remarks	

There are hundreds of thousands of buildings in this country that need some, or all of the various kinds of material that you sell. Even the house that was completed yesterday and the one to be completed next month is a prospect.

But what are they prospects for? The T.E.B. "Inspection Report" card herewith shown is the key to the above question. Therefore, have your journeymen turn one of these cards in on every building they do work in. By so doing they will build up a list of business prospects that will produce business when new business has slumped. Business slackness will come some time. Just when, we do not know, but this is a sure method of warding it off.

necessary evils, because heretofore they have been unable to remedy successfully poor circulation due to adverse winds or peculiarities of house construction and the consequent furnace installation and layout difficulties.

Is Not a Cure-All

Induced warm air circulation is not a

cure-all. It will not make satisfactory jobs that have been furnished with undersize furnaces, with poor installation work, or with insufficient cold air returns. But with the proper size furnace, fairly well installed and with proper sized pipes, it will overcome the bugbear of sluggish circulation.

Contracts Awarded

Haileybury, Ont.—A. Brazeau, Timmins, has been awarded the plumbing and heating contract on the new separate school being built here. He has also secured the plumbing and heating contracts on the new public school.

Three Rivers, P. Q.—Valere Garceau, 238 St. Julie, has the contract for plastering and plumbing of the kiln and heating system, costing \$75,000, for Hospital St. Joseph.

Toronto.—E. Lankin & Son, 56 Lippincott St., have the roofing contract for \$100,000 addition to Methodist Church on Danforth Ave.

Timmins, Ont.—The sheet metal work on the new \$20,000 High School is to be done by A. Brazeau.

Brockville, Ont.—The plumbing and heating contracts on the \$5,000 addition to the Brockville Recorder and Times Building have been secured by George Ross & Co.

Cornwall, Ont.—Arthur Robinault, Valleyfield, P.Q., has been awarded the contract for roofing in connection with the extension to paper mills of the Howard Smith Paper Mills Co.

Ridgeway, Ont.—The contract for plumbing in connection with the \$67,000 club house has been awarded to E. Cardwell, 32 Division St., Welland.

Three Rivers, P.Q.—Germain & Freres, St. Antoine St., have the contract for roofing, plumbing, and heating, in connection with the \$30,000 extension to factory on Bellefeuille St.

Waterloo, Ont.—Harvey Gleiser, King St., has the contract for heating and plumbing in connection with \$15,000 addition to factory owned by Bauer Bros.

Walkerville, Ont.—The contract for plumbing and heating in connection with \$7,000 factory for T. H. Taylor & Co., Chatham, Ont., has been let to N. Fielding, 40 Assumption St.

New Hamburg, Ont.—Geo. Steiner has the heating and plumbing contract for the \$12,000 residence being built for Miss L. Travers.

Ottawa.—Wm. Roy, Armstrong St., has the contract for plumbing and heating of the \$25,000 apartment house being erected on Wellington and Holland Aves., for William Joynt, Laurentian View.

Toronto.—A. B. Ormsby Co. have the roofing and sheet metal contracts for the \$175,000 office building for the Canada Life Assurance Bldg., Gerrard and Yonge Sts.

Ford, Ont.—The Ford City Plumbing & Heating Co. have the plumbing and heating contracts for \$15,000 residence being built on Sandwich St. for Joe L. Reaume.

Windsor, Ont.—Chas. W. Jessop, 619 London St. W., has the plumbing contract on \$7,000 garage being erected on Church St., for E. P. Holden.

Dorval, P.Q.—John Gordon has the plumbing and heating contracts for the \$25,000 addition to the residence of J. W. McConnell.

Gaspe, P.Q.—J. H. Paquet, 30 Dalhousie St., Quebec, has the plumbing contract for the \$30,000 addition to the bishop's residence.

Oakville, Ont.—W. Whitaker, Jr., has the heating and plumbing contracts on \$11,000 residence being built on First St., for E. D. Wilkes.

Ottawa.—E. Monette has the heating and plumbing contracts on \$10,000 duplex residence on McLeod St., owner, C. Armstrong.

Toronto.—F. O. Swan, 1962 Gerrard St. E., has the plumbing contract and Pollard & Dilks, 54 Gledhill Ave., the heating contract on three pair residences, \$18,000, being built by Woodhouse & Dickinson, on Milverton Blvd.

Quebec, P.Q.—The general contract for the heating system for St. Malo School has been awarded to Fortunate Gingras, 34 St. Augustin St.

Truro, N.S.—F. Dexter & Co., 594 Prince St., have the contracts for plumbing and heating for the \$9,000 rectory being built for St. John's Anglican Church.

Vancouver.—Barr & Anderson, 1060 Homer St., have secured the plumbing and heating contracts for the \$32,000 Infants' Dormitory for the Children's Aid Society.

Wolfville, N.S.—H. G. Hagen & Co., Halifax, have been awarded the plumbing and heating contracts for the \$350,000 auditorium and lecture rooms for Acadia University.

Mimico, Ont.—J. H. Doughty has been awarded the roofing, sheet metal, plumbing and heating contracts on \$20,000 branch of the Bank of Montreal.

Ridgeway, Ont.—W. E. Wilkinson, Bridgeburg, Ont., had the contract for plumbing and heating for \$67,000 club house.

Egmont Bay, P.E.I.—Thos. Johnston & Co., Ltd., Summerside, have the contract for heating of \$30,000 church being built for the R.C. parish.

Giffard, P.Q.—Fortunate Gingras has been awarded the plumbing and heating contract on the new \$39,000 school.

Giffard, P.Q.—J. Careau has been awarded the plumbing and heating contract on the \$55,000 boarding school being built for Rev. Sisters Oblates.

Toronto.—I. Maude, 18 Rowland Ave., has the plumbing contract and J. A. Pountney, MacKay Ave., the heating contract on \$18,000 residence and garage on Austin Terrace and Lyndhurst.

Heating Engineer Out to Make November a Record for Business

B. J. Shea, Veteran Heating Engineer of Fredericton, N.B., Employs Progressive Methods—Circularizes House Owners on Value of Good Heating

THE fall months are the logical months to campaign for heating business, including installations and repairs, in the opinion of D. J. Shea, of Fredericton, N. B. Mr. Shea is one of the veterans of the plumbing and heating trade of Eastern Canada. He was operating his business when some of the younger contractors were on the business end of a milk bottle. And yet he has not lost interest in his business. Nor could he be styled a reactionary. In fact he is a progressive, and keeps busy evolving new ideas that will help business.

For instance, he is now in the throes of a drive to make November a big month for heating. In this connection he has prepared a bulletin which he has had printed and distributed to house owners, in and about Fredericton. The bulletin is worded as follows:

The important matter of heating should not be left until the temperature is away down.

Much better to take time by the forelock and have the necessary work done now.

Setting up new furnaces, repairing old ones, installing and repairing steam and hot water heating systems is part of our business.

We are prepared to give all orders prompt attention, having a large staff of workmen ready.

It will be noticed that there is an entire absence of long words. Mr. Shea is a firm believer in appealing to the public, in simple and direct language. He believes that the stilted language of some advertisers, travels right over the heads of those whose attention is sought. He is also a firm believer in the advisability of a plumbing and heating engineer writing his own advertising in most instances. "Keeping everlastingly at it," is the slogan of the Shea business, and that it has been successfully applied, is proven by the importance of this business.

Tinsmithing and Sheet Metal Work

Tapering Elbows Which are to Correspond with Measurements of Special Nature Can be Laid Out by Sweep Method

This Plan Permits Designer to See Definitely Just What He is Going to Have When Pattern is Complete

Written for Sanitary Engineer by O. W. KOTHE, Principal, St. Louis Technical Institute

RESPONDING to an inquiry for a tapering elbow, will say the accompanying drawing will satisfy the solution.

There are several methods of approaching such a development, but the writer believes the method outlined serves the purpose better, in that it enables a person to see definitely what he is going to have. It also allows fitting such an elbow in definite measurements; and should the distance X be longer or shorter than Y, proper disposition can be made, so that the elbow will fit in the given measurements.

Procedure in Laying Out Pattern

The secret of this method is to consider the elbow in the first place as a common straight elbow, where the joints can be made reversible into a straight cylinder. Inside of this, we build our taper elbow, working from centre measurements as lines X and Y. This will establish the vertex W, from which the arc a-f is described, and the arc divided to make a 5-piece elbow. Thus: $5 \times 2 = 10$ minus $2 = 8$ spaces for the quadrant.

This is the same as for any ordinary elbow, and we then draw miter lines from W through points b-c-d-e. We then work from the large end of elbow 1-7 and square up lines as 1A and 7-B. If we wish to see how the elbow will look and the position it takes, we can complete the straight elevation of elbow, as the dotted lines show. Then to fill in the taper, we take the half diameter a-a' and set it as f-a on the base of the large end, and divide the remaining space into five equal parts or as many as we have parts in the elbow. This is the equalization scale, and with dividers we pick the distances as f-b, f-c, f-d, f-e, and set them as b-b', b'', c-c', c'', d-d', d'', e-e', e'', which allows drawing the taper lines and will centrally locate the taper in the elbow of the dotted position.

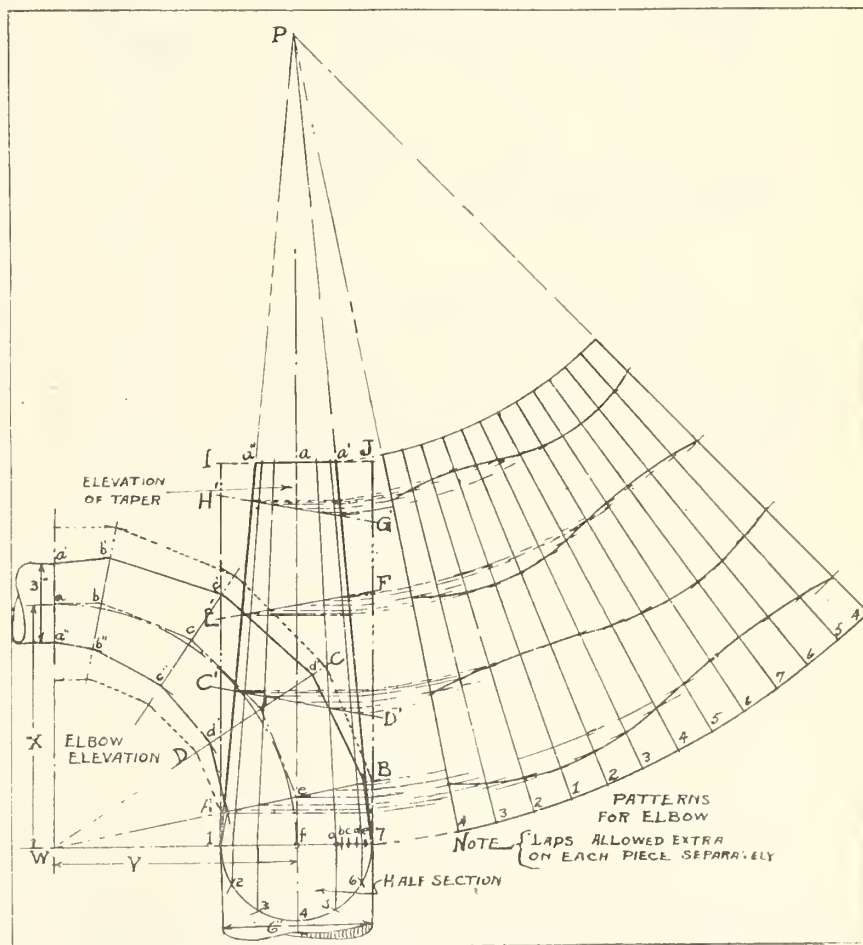
We have here an elbow to fit in a given position to correspond with measurements that may be of a special nature. From this elevation, we then construct our elevation of taper; that is, we straighten out our elbow into a straight

pipe, and draw the taper on the inside. So we pick the heel and throat lines from the straight elbow of the dotted position, as B-C and A-D, and set them as A'-C' and B-D'; also continue the process and duplicate the pieces as C'-E', D'-F', F'-G', E'-H', G'-J', H'-I'. This allows drawing the miter lines in the straightened out elevation, such as a reversible elbow would have in a similar position. On the inside we draw the taper, measuring off the diameter, as a-a'-a'', and then draw the side lines, extending them to the apex P.

Next, describe the half section for the large base, and divide in any number of equal spaces, as from 1 to 7, and square the lines up to the base 1-7, and from here taper them to the apex P, so as to cut the miter lines as shown. A nail can be driven in the apex P and this facilitates drawing the radial lines, by laying the straightedge up against the nail.

Now, since only the outside lines of the taper are true lengths, and all the inside lines are foreshortened, we, therefore, project lines from each point in the miter lines to the outside slant, as a'-7, which places all of these points in the miter lines in a true length position, and enables sweeping out the pattern. The pattern is then swept out as we show it; and no comment is needed on this procedure since it is the same as describing a taper joint of pipe, or a flaring pan or funnel. Care must be taken when placing the seams on the sides, as we show them, that the heel and throats have a proper relation in the flat, otherwise it is easy to overlay them

(Continued on Page 40)



Working Drawing Shows Pattern for Special Tapering Elbow in Response to Inquiry

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Armistice Day Observances

ONCE again the anniversary of Armistice Day has come and gone, attended by celebrations of jubilation and the services in memory of the fallen that have marked the date each year since the closing of the war. Fit and proper are these observances, but there is another angle to the day which should be given even more consideration than these, worthy though they are.

Armistice Day saw the close of a great war, waged for the purpose of making a better civilization. Canadian men fought and died that this aim might be achieved, but it can be achieved only by the honest and earnest endeavors of every citizen, at all times, in peace or in war.

With each individual to-day rests a duty just as serious as that which faced them in war days. A better Canada and a better civilization is only possible if each person orders his life so as to help make them so. Armistice Day should be a day of thought and of soul-searching, a day when the individual turns his consideration to what he is doing for the good of his country and for his fellow man—what he is doing to carry on the work so nobly undertaken by the sixty-five thousand of his fellow citizens who gave their lives in France and Flanders, and by the several hundred thousand others who offered theirs just as freely.

Dirtless Plumbing

A RECENT tendency has been noted in the trade toward a greater care in the household in doing the work necessary for plumbing and heating installations or repairs. This is probably a somewhat natural development following upon the era of keen competition for business. When business reaches such a competitive stage as has been felt recently the most marked progress is always noted along certain lines. It becomes a survival of the fittest and everyone endeavors to do things sufficiently better than the other fellow to justify his getting the business. Whether or not this natural tendency is at the root of the present movement, it is a development which should be continued and broadened in its application to the plumbing and heating industry.

Much of the average housewife's attitude of necessary tolerance toward the plumber would be removed by greater care on the plumber's part in regard to his own personal appearance, the way he conducts himself while in the house and the way in which he handles household effects with which he is in contact. No one expects a plumber to come in a plug hat and a starch front shirt; he is expected to be attired in clothing suitable to the class of work in which he is engaged, but there is a wide latitude even here. When the plumber's appearance is such as to engender in the housewife's mind a fear that her home will be unnecessarily dirtied

by his work, the gap between the customer and the plumber is further widened.

One or two plumbing and heating contractors have recently been making a big bid for business featuring their "dirtless workmen," and they have been having good success. The business secured by replacing equipment in buildings already constructed is becoming so important in both plumbing and heating that it must be given attention. If the work to be done in such cases is executed with a minimum of dirt and inconvenience to the occupants, the owner will be favorably impressed, less likely to oppose further plumbing and heating improvements in future, and more likely to get the same plumber to do the work than to go elsewhere. From every standpoint it is a sound proposition, takes no more time of workmen, and, if widely adopted, will result in considerably raising the appreciation of the average home owner for the plumber and heating engineer.

No Machinery Men Are Cheap

THE plumbing and heating industry is one which has benefited very largely from the introduction of modern machinery. To a greater extent than it commonly appreciated this industry has been assisted toward more rapid development by the use of machinery in factories and even in the operators' workshops. A question has been asked as to whether the further use of machine methods would result in any greater efficiency and consequent lowering of costs in this industry. Having this point in mind and the tendency among certain classes of workers to oppose the introduction of any machine methods which might cut down the number of men employed, the recent remarks of Samuel Gompers, before the American Federation of Labor, are of interest.

"Accept the machine, organize the workers," said Samuel Gompers. Resistance against new machinery was useless, he said. "I am free to say that from that time there came some light to my mind, and I realized then for the first time that it was absolutely futile for workmen to protest against or go on strike against the introduction of a new machine, a new device or a new tool.

"In the old time when the cotton spinning jenny was introduced and the machine put into the textile plants, the men in the industry, enraged at seeing their trade taken away from them, a trade they had to serve several years to acquire, destroyed the machine. Was the machine destroyed? Yes, but was the idea destroyed? No. The blue prints were in existence for that machine, and in any event the scheme and the plan were in the mind of some one who had burned the midnight oil. The machines in the textile industry became universal in every modern country.

"The conditions of the textile workers are not what they ought to be by any means, but were the conditions of old, when the men worked by hand, better than those that now prevail? By no means. The hours of labor were from sun up to sun down.

"The water carriers of Egypt protested when pipe lines were being laid to carry water to some central parts of the cities, because it did away with their trade of carrying water. The rickshaw runners of China raised a revolution because horses were put to wagons to carry people. In some of our cities hack drivers protested against the erection of railroad stations because it took away their jobs.

"Some years ago I had occasion to travel in the southern states, and there I saw, in the middle of the rivers, colored men who were dredging with buckets and long poles. They were getting 20 to 30 cents a day. Wherever men are cheap no machinery is used in industry or any other way. It is only when men are dear and wages are high that machinery is brought in."

Average Expense of Specialty Trades

THE Harvard Bureau of Business Research supplies the following figures for specialty stores in 1922, a survey of which field it has just completed:

	Pct.
Salaries and wages	15.2
Rentals	3.3
Advertising	3.4
Taxes, except income and building	0.3
Interest on owned and borrowed capital	1.8
Supplies	1.1
Light, heat, power, delivered.	1.0
Unclassified	1.0
Travelling	0.6
Communication	0.3
Repairs, except to building	0.3
Insurance, except on building	0.3
Bad debt losses	0.2
Depreciation, except on bldg.....	0.7
Professional services	0.2
Total expenses	29.4
Net profit	2.5
Gross margin	31.9

THERE are a number of notations to be made in connection with the foregoing. One of them is that they are not average figures, but the figures selected as the most common or usual for each of the items. Therefore, the addition of (most usual) items does not necessarily give the figure for (most usual) total expense.

THE figures were collected from reports of thirty-one shops, eight of them doing less than \$250,000 a year, six from \$250,000 to \$199,000, four from \$500,000 to \$999,000, nine from \$1,000,000 to \$3,999,000 and two from \$4,000,000 to \$9,999,000 and two doing a business of more than \$10,000,000.

NO CLASSIFICATION of salaries and wages by functional groups was made, but it was noted that administrative and executive salaries and wages ran higher in specialty shops than department stores.

BUYING salaries and wages appeared also to be slightly higher, but direct selling salaries and wages ran considerably lower in percentages of net sales in specialty shops than in department stores.

TOTAL publicity and buying expense appears to be higher than in department stores (this means the inclusion of salaries, etc., which are not included in the figures given in the foregoing table).

OF SEVENTEEN shops reporting on the point, 8.8 per cent. of gross sales appeared to be the typical figure for returns and allowances, though the range was from a low of 5 per cent. to a high of 20 per cent.

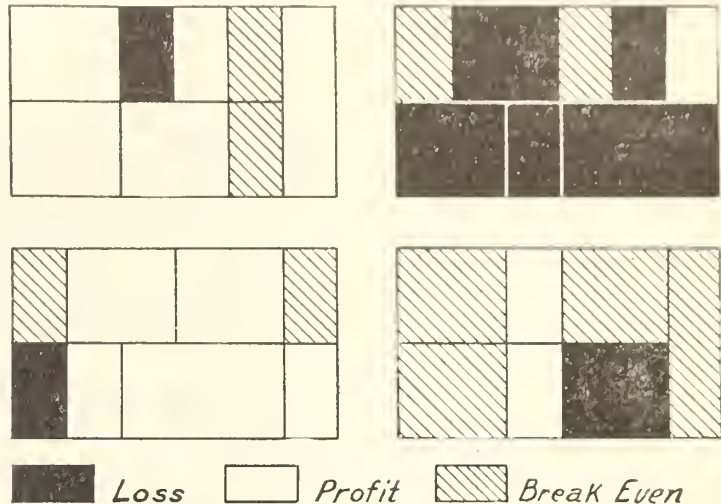
THE usual figure for stock-turn was 4.3 times a year.

How Big is Your Store?

Minute Message No. 37

Written for Sanitary Engineer by FRANK STOCKDALE

Profit Figuring Series



THE illustration above shows the profits and losses by lines in a shop which carries thirty-one different lines of goods.

Only eight of the thirty-one lines really lost enough money to be considered profit losers.

Ten other lines, however, either made a very small profit or a very small loss. To save confusion we say the plumber breaks even on these ten lines.

This leaves thirteen profit makers as against eight profit losers. These eight losing lines consumed the profits of the eight profit making lines selected from the thirteen "white" lines.

This plumber, therefore, has the net profits on five lines as his total for the year. In other words he realized one-sixth of the profit he might have made from a business where all lines were profit makers.

How big is your shop?

It's just as big as the profits it produces.

It pays to know the profits and losses on each line of goods carried.

THINK IT OVER—APPLY IT TO YOUR BUSINESS

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News Notes From Coast to Coast

Doings in the Plumbing and Heating Industry

BUSINESS CHANGES

George A. McLaughlin, Blyth, Ont., has disposed of his plumbing business to Colin Finland.

INCORPORATIONS

Incorporation has been granted to the American Plumbing Supplies, Ltd., to manufacture, wholesale, job and retail plumbing supplies. The head office of the firm will be in Montreal. Capital \$75,000.

OBITUARY

Edmonton.—News has been received in the city of the sudden death at Victoria, B. C., of John C. Wilcox, general manager of Carroll & Wilson, plumbing supply dealers of this city. The remains were taken to Toronto for burial. Previous to coming here ten years ago, the deceased was in the employ of Cluff Bros., Toronto.

FIRM GETS BIG ORDER

Sarnia, Ont.—Announcement has been made of a contract between the Canadian Products Company, a division of the General Motors of Canada, and the H. Mueller Mfg. Co., whereby the latter becomes the sole source of supply for brass parts required in the production of McLaughlin cars during the coming year. This material has heretofore been largely purchased in the United States.

WILL VOTE ON SEWER QUESTION

Toronto.—Although York Township passed a by-law for the establishment of sewers, sewage disposal plants and equipment in Todmorden, Greenwood, Eaton and Muriel Ave. districts, it is understood that many of the ratepayers do not want the sewers installed at present, owing to heavy taxes caused by recently installed sidewalks and other local improvements. It is expected that the question will now be put to a vote of the ratepayers at New Years.

PLUMBERS VIOLATE TRUST LAWS

Washington, D. C.—Fines aggregating \$20,000 have been imposed by the Federal Courts in Chicago upon 16 plumbing and heating companies of the Middle West for alleged violation of the Sherman Anti-Trust Act. The indictments against the firms charged the defendants with having conspired to fix and maintain uniform and non-competitive prices for plumbing and heating apparatus and fixtures sold to retail dealers and master plumbers in several states of the Middle West.

PERSONAL

Major L. L. Anthes is in New York, where he will attend the executive meeting of the American Foundrymen's Association, of which executive he is a member, later proceeding to Baltimore to attend the annual dinner of the National Founders' Association.

NEW BUILDING FOR HOSPITAL

Winnipeg.—A new building is being erected in connection with Grace Hospital. It will cost approximately \$70,000 and will be used as a heating plant, power house and laundry. Plans are also under way for a new wing to the hospital proper, to be built in 1924, at an estimated cost of \$130,000.

TO AMALGAMATE CIVIC SERVICES

Winnipeg.—Amalgamation of the city engineers, waterworks, plumbing and sewer, street commissioner's, and all other operating and construction departments, outside the hydro, is the proposal of the civic department amalgamation committee, appointed to investigate the possibility of eliminating overlapping and duplication of effort in the civic departments.

EXPORT DEMAND INCREASING

Brantford, Ont.—The Williams Tool Corporation report an improvement in export demand. Through Cranes, Ltd., they recently sold, for an account in India, two machines, one a 20-inch and the other a 6-inch. The machines had to be packed in sections for carriage by mules into the interior of India. A third machine, a 6-inch, was shipped recently to a point in South America for the Imperial Oil Co.

WILL MAKE SANITATION CENSUS

Regina.—Prompted by the city commissioners, officials of the building inspector's department and the health department are to conduct a survey of the city to determine how many houses now on the city water and sewer lines are without connection to those two services, contrary to civic by-law. Further than that, they are to estimate the cost of the installation of the necessary fixtures to make such houses come within the accepted meaning of the term "modern." It is estimated that there are 900 houses in the city not connected with these services.

BUILD DORMITORY AT R.M.C.

Kingston, Ont.—The contract for the erection of the new Royal Military College dormitory building has been awarded to H. W. Watts, Kingston. Simmons Bros. have the plumbing, heating and tinsmithing; T. Milo, painting and glazing; S. Anglin & Co., woodwork; J. Harris, electric wiring. The cost of the building is placed at \$103,000.

SEWERS OR SEPTIC TANKS?

Toronto.—Sewer connections versus septic tanks is a live question in the western suburbs, in doubt as to where they stand on the possibility of being annexed to the city of Toronto. Humbercrest school, 600 yards outside the city limits, is hesitating before investing money in septic tanks, to see if there is a possibility of securing sewer connections from the city or of being annexed and included in the city's system, while other districts find themselves in somewhat similar positions.

FEW CHANGES WANTED IN BY-LAWS

Windsor, Ont.—Master and journey-men plumbers of this city, who met recently with the finance committee to discuss the plumbing by-law, approved of the by-law with very few exceptions. A few minor changes were submitted and referred to Plumbing Inspector Newitt for report. The plumbers also submitted clauses calling for a year's residence and a license fee before a plumber could be permitted to do work. These, too, will be considered by the finance committee.

TENDERS WANTED

Ottawa, Ont.—Heating and plumbing tenders are being received by J. E. Poirer, 440 Clarence St., in connection with \$18,202 addition to chemical laboratory.

Point Grey, B.C.—Sharp & Thompson, 708 London Bldg., Vancouver, are preparing plans for \$250,000 central heating plant on University Campus, and tenders will be called shortly.

Montreal.—Ventilating, roofing, plumbing and heating tenders are being called for in connection with \$90,000 hospital at 121 St. Hubert St. The architect is J. E. C. Daoust, 180 St. James St.

Toronto.—Roofing, heating and plumbing tenders are being called for \$100,000 manufacturing building being erected at Spadina Ave. and Phoebe St. for Empire Clothing Co. B. Brown, 287 Spadina Ave., is the contractor.

Cannington, Ont.—Heating and plumbing tenders are being called for in connection with the \$18,000 residence being erected for N. D. McKinnon. J. Hunt

Stanford & Son, 67 Yonge St. Arcade, Toronto, are the architects.

Toronto.—Plumbing tenders are being called for by S. H. Lumb, 31 Oakdene Crescent, owner and builder of four stores and apartments being built on Danforth Ave.

Montreal.—Plumbing and heating tenders are being called for in connection with six residences and four garages, \$50,000, on Van Horne. Guidazio & Besozzi, 640 De L'Epee Ave., are the owners and builders. They also are building \$100,000 apartment house in Outremont on which plumbing and heating contracts are still to be let.

Toronto.—Plumbing and heating contracts are still to be let on two residences, \$20,000, on Springmount Rd. J. Hunt Stanford, 67 Yonge St. Arcade, is the architect.

Mount Royal, P.Q.—Bremner Norris & Co., general contractors, have the letting of plumbing and heating contracts on \$12,000 church hall for Church of England.

Waterville, N.S.—J. H. Hicks & Co., general contractors, have the letting of roofing and plumbing contracts for \$13,000 church for Methodist and Presbyterian Union.

Kitchener, Ont.—Bacher & Hauch, 37 Queen St. S., are owners and builders of \$10,000 residence, Maynard & Margaret Aves. They are receiving tenders on heating, plumbing and electric.

Montreal.—M. Bernstein, 591st St. Catherine St. W., is owner and builder of \$16,000 residence on Grand Blvd. He is receiving tenders for roofing, plumbing and heating.

Montreal.—All sub-trades are still to be let on \$45,000 residence on Sherbrooke. N. Shribman, 5056 Sherbrooke St. W., owner and builder.

Montreal.—Roofing, plumbing and heating contracts are still to be let for \$15,000 residence being built on Sherbrooke St. by A. Letourneaux.

Montreal.—All sub-trades are still to be let on \$12,000 residence on Laurier Ave. T. Pilotte, owner and builder.

Montreal.—Roofing, plumbing and heating contracts are still to be let on four residences being built on Patricia by J. S. Brown, 324 Patricia.

CONTRACTS AWARDED

Toronto.—H. Griffiths & Co., 1128 College St., has the plumbing contract for \$12,000 annex to sub-station, Duncan and Nelson Sts., for Toronto Electric Commissioners.

Toronto.—W. A. Brown, 331 Georgia St., has the plumbing contract and Walker, Leek & Co., 1090 Homer St., the heating contract on the \$60,000 apartment block being built at 12th Ave. and Alder St., for Wm. Walker & Co.

Brampton, Ont.—Higgins & Large have the heating and plumbing contract for the new \$12,500 telephone exchange.

Toronto.—A. T. Steven, 516 Yonge St., has the plumbing contract and Howard Furnace Co., the heating contract, on seven residences, \$6,000 each, on Strathmore, near Woodmount Rd.

Corbyville, Ont.—John Lewis & Co., Belleville, have the plumbing and heating contracts on the \$225,000 distillery buildings for the Canadian Industrial Alcohol Co.



HE GOT IT

A ten-year-old boy entered one of the banks of a thriving town and walked up to the cashier.

"Mister," he said, "I want a check book for a lady that folds in the middle."

IN CITY LIMITS

A Chicago man, while in New York, was requested by a long-distance telephone operator to deposit 25 cents for telephoning to a certain place. He objected.

"Why, in Chicago we can telephone to H--- for a quarter."

"Yes, but that's in your city limits," was the girl's answer.

TRYING FOR BOTH

A very homely Irishman had lost his job and was having a hard time finding another when an acquaintance met him one day.

"Hello, Pat! How are ye?" he said.

"Mighty bad," was Pat's reply. "Sure 'tis starvation that's starin' me in the face."

"Is that so?" the other rejoined. "Sure it can't be very pleasant for ayther av ye."

DESERTEd BUT NOT QUITE ALONE

"Yes, your honor," the aggrieved wife explained, dabbing her eyes, "my husband neglects me shamefully; he's never at home."

"Hum!" the judge pondered. "And how about you—do you spend your evenings all by yourself, with no companionship whatever?"

"We-w-well," she sobbed, "I—I have two goldfish."

FATHER'S FAULT

Father had a nasty temper at times. One night his small boy was sitting by him, studying arithmetic. The father broke out:

"What on earth ails you? Why can't you sit still—wriggling and writhing every minute?"

"It's all your fault," blubbered the boy. "Why?"

"'Cos I asked you last night how much a billion was, and you said 'a deuce of a lot!' The teacher asked me the same question to-day and I said the same thing. And that's why I can't keep still."

LAYING A TRAP

A British tar, home on leave and celebrating the occasion, had got himself into a dilemma. He had hired a taxi, only to discover when approaching his destination that he was penniless. He had dined and wine, not wisely, but too well. But the British navy is a training school of resourcefulness. He caught up the speaking tube, shouted "Stop!" and jumped out.

"I just want to pop into this tobacconist's and get some matches," he explained to the driver. "I've dropped a pound note somewhere in the cab and can't find it in the dark." He entered the tobacconist's and as he did so the cab and its driver vanished into the night, as he had anticipated.

FOR EX-SERVICE MEN ONLY

On the other hand, there is the story of the dusky lady, narrated by Mac in the Rock Island Argus, who went into a drug-store and asked for one cent's worth of insect powder.

"But that isn't enough to wrap up," objected the drug clerk.

"Man," exclaimed the dark lady, "I ain't asked you to wrap it up. Jes' blow it down my back."

RAPID MULTIPLIERS

A little boy was overheard saying to his pet rabbit:—

"How much is seven times seven?"

There being no response from the rabbit, the boy said:

"How much is four times four?"

Still there was no response.

"Now I will give you an easy one. How much is two times two?"

Still the rabbit refused to respond.

"Well, said the boy, 'I knew father was fibbing when he said rabbits are the greatest multipliers in the world.'"

THE APPEARANCE OF EVIL

"Sister Henderson," said Deacon Hypers, "you should avoid even the appearance of evil."

"Why, Deacon, what do you mean?" asked Sister Henderson.

"I observe that on your sideboard you have several cut glass decanters and that each of them is half filled with what appears to be ardent spirits."

"Well, now, Deacon; it isn't anything of the kind. The bottles look so pretty on the sideboard that I just filled them halfway with some floor stain and furniture polish, just for appearance."

"That's why I'm cautioning you, sister," replied the Deacon. "Feeling a trifle weak and faint, I helped myself to a dose from the big bottle in the middle."—Exchange.

COPY OF CARD GIVEN TO MOTORISTS IN KOBE, JAPAN

At the rise of the hand of the policeman, stop rapidly. Do not pass him by or otherwise disregard him.

When a passenger of the foot hove in sight, tootle the horn, trumpet to him melodiously at first. If he still obstacles your passage, tootle him with vigor, and express by word of mouth the warning, Hey, Hey.

Beware of the wandering horse that he shall not take fright as you pass him. Do not explode the exhaust box at him. Go smoothly by or stop by the road side until he pass away.

Give path space to the festive dog that make sport in the roadway. Avoid entanglement of dog with your wheel spokes.

Go smoothly in the grease-mud, as there lurk the skid demon. Press the brake of the foot as you roll round the corners to save the collapse and tie-up.

WINDOWS OVERCOME PROBLEM

(Continued from page 18)

Secure two coal scuttles of noticeable difference in size. Fill each scuttle full of coal with plenty piled on top. Place your display board on the centre pedestal, so braced from the rear that it will stand erect. Place the large coal scuttle on the pedestal on one side, and the small coal scuttle on the pedestal on the other side of the window.

With the photograph and the foregoing description, any heating contractor should have little difficulty in building an effective display based on this idea.

Portable Pipe Cutting and Threading Machine Placed on the Market

New Device Designed to Fill the Gap Between the Heavy, Immobile Power Machine and Light Hand Equipment—Weights Less Than 500 Pounds

A NEW machine to meet a long-felt want in the pipe cutting and threading field, has been placed on the market by the Williams Tool Corporation, of Brantford. This machine has been designed to fill the gap that has long existed between the heavy and immobile power machine and the light hand threading and cutting equipment. It is called a Portable Pipe Cutting, Threading and Reaming Machine.

The manufacturers point out that the machine weighs less than 500 pounds and may be dismantled in less than three minutes, and there is every indication that it will have an extensive sale to steamfitters, manufacturers and engineering concerns who do not require the heavy machine but have found their equipment inadequate for rapid and efficient service.

Portable and Demountable

It is perfectly designed, for weight and strength, to cut smooth and clean threads, either right or left hand, within

its capacity, and can be dismantled in two minutes and fifteen seconds.

The small oil trough or cutting box under the carriage lifts off, allowing the carriage and head to slide off the round ways, and by releasing two screws the Shelby tube steel ways can be pulled out of the head stock, thus leaving only the pedestal and head stock as a unit which two men can easily lift.

Its capacity is as follows: Threading, pipe, $\frac{1}{4}$ to 2 in. inclusive, bolts $\frac{3}{8}$ to $1\frac{1}{4}$ in.; cut-off, pipe or tubes $\frac{1}{4}$ to 2 in. inclusive, bolts and rods $\frac{3}{8}$ to $1\frac{1}{2}$ in.; reaming inside or chamfering outside, pipe or tubes $\frac{1}{4}$ to 2 in.; longest running thread at one chucking $10\frac{1}{2}$ in.

Motor Belt and Hand Driven

The machine is driven by a standard $\frac{3}{4}$ -h.p. motor by means of belt from motor to drive pulley enclosed in the base of machine and mounted on a hinged table which allows tightening of the belt instantly by screwing down on a thumb screw. Current is supplied

from an ordinary lamp socket through a standard cord with push socket. A button control switch for start and stop is mounted on the machine at the operator's left hand.

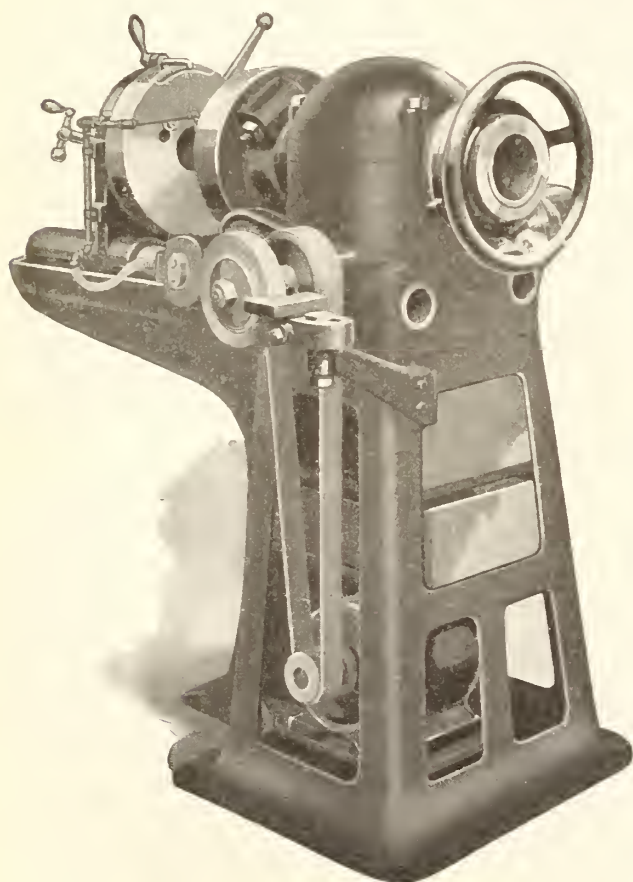
Since the drive from motor to machine is through a belt, this insures protection to the dies and other working parts should excessive strain be placed on any part of the machine. The slippage of belt in this case would act as a safety factor.

The machine can be converted to belt drive by simply taking off the motor belt and driving from a line or counter-shaft.

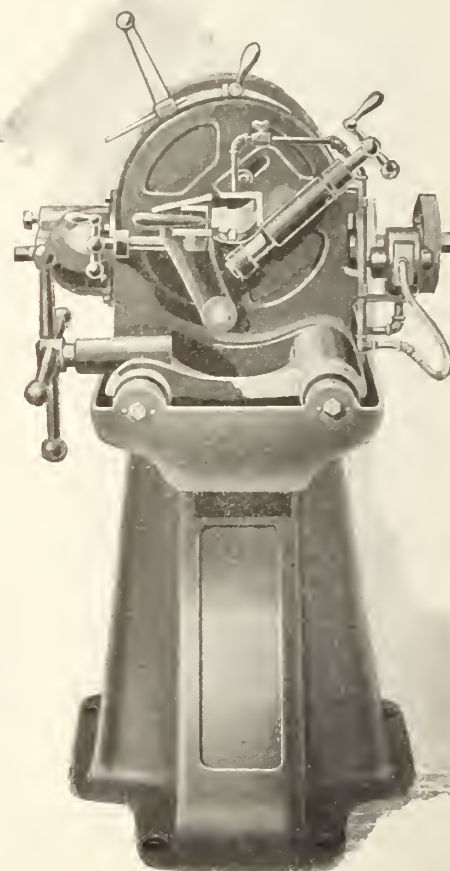
Provision has also been made to operate the machine by hand. To do so, it is only necessary to shift gears to neutral position when the crank handle can be fitted on to the worm shaft which is directly connected to the spindle through worm and worm wheel.

Two Speeds

The spindle has two speeds arranged similar to automobile sliding gear, which



Two views of the portable pipe cutting, threading and reaming machine placed on the market by the Williams Tool Corporation, of Brantford.



also gives a neutral position for the purpose of starting and stopping spindle without shutting off current. It is operated by small knurled push button at operator's left hand.

All gears are made of steel, machine cut. Sliding gear driven by standard Woodruff keys. The drive to spindle is through a quadruple worm and worm wheel with ball thrust. All gears and worm are lubricated by oil from a special oil sump.

All bearings in the machine are equipped with standard Bunting bronze bushings, lubricated from a special oil sump. The driving shaft has three bearings and the worm shaft two.

The spindle is made of standard Shelby steel tubing, extra heavy, and has a bore of $2\frac{7}{8}$ in. which allows a 2-in. coupling to pass through. The spindle rests in a box type head stock which has wide face bearings lubricated by splash system from special oil sump.

The front gripping or driving chuck is Williams standard three-jaw universal self centring. The chuck worm and worm wheel are steel packed in grease, while the chuck jaws are tool steel tempered. On the rear of the spindle is a standard Williams three-jaw self-centring scroll chuck for centring long lengths of pipe and operated by a hand wheel.

The carriage ways on which the carriage slides are standard Shelby steel tubing, extra heavy, accurately sized to one-thousandth part of an inch and highly polished, thus insuring a long wearing surface.

Die Head

The die head and carriage are cast in one piece, thus eliminating any possible chance of the head getting out of alignment. The part of the carriage resting on the Shelby tube ways is babbitted with extra hard babbitt.

The carriage has six bearing parts on the ways, three on each side. This makes it possible for the carriage to be re-babbitted and lined up at little expense after years of hard usage. Operation of head and setting of dies is very much similar to that used on all the standard machines.

The dies are operated by cam and lever and are interchangeable, adjusted to all variations of fittings. A graduated die head makes unnecessary the use of blank gauges for setting the dies. Whenever several pieces of the same size pipe are to be cut, a cam stop is used to stop the cam lever at the right place for that particular size.

Three sets of dies are furnished with the machine as standard equipment, one set cutting $\frac{1}{4}$ and $\frac{3}{8}$, one set $\frac{1}{2}$ and $\frac{3}{4}$, and one set 1 to 2 in.

To change the dies it is only necessary to slack off two nuts on the face of the die head, when the die plate can be shifted a fraction and lifted right away from the head.

Cut Off and Ream

The cut-off attachment is mounted on the rear of the die head and is operated

by a screw and hand wheel. A quick-operated V slide steadies pipe when cutting off. The V slide is equipped with hardened tool steel facings insuring a lasting wearing surface on the steady rest. This enables the operator to cut all sizes of pipe and bolts as required.

The blade is double bevel high-speed, set at an angle, which means that the machine can be run at its highest speed for all cutting-off purposes.

On the cutting-off attachment is pivoted the reamer holder operated by a lever. It is so arranged that all sizes of pipe can be reamed inside, or if necessary a slight chamfer can be made on the outside.

The tool bit used for this purpose is $\frac{3}{8}$ in. square, the same as used in any standard tool holder.

A Brown & Sharpe rotary geared oil pump is located on the rear side of the machine near the driving pulley. It is gear driven direct from the intermediate shaft. All gears are enclosed in a gear case. The oil is pumped from the reservoir in the base of the machine through a specially constructed strainer to the pump. From there it is forced through a flexible hose to the die head, thus insuring an ample supply of cutting oil to the dies and cut-off tool when operating.

A small independent valve is provided for each operation.

After flushing the dies and cut-off tool, the oil drains back into the small oil pan under die head. Before leaving the pan it is strained, after which it flows back into the reservoir and is used over continuously. But each time it must pass through the strainer in the oil pan, and the fine strainer on the end of the suction pipe eliminates any possible chance of grit or dirt getting into the pump.

A special die cabinet is cast in the top of the pedestal, providing a safe and

convenient place to store dies as well as any small tools used on the machine.

Each part used on the machine has been manufactured from specially designed jigs and fixture, which insure all parts being accurately machined and interchangeable.

Emery Wheel Special Feature

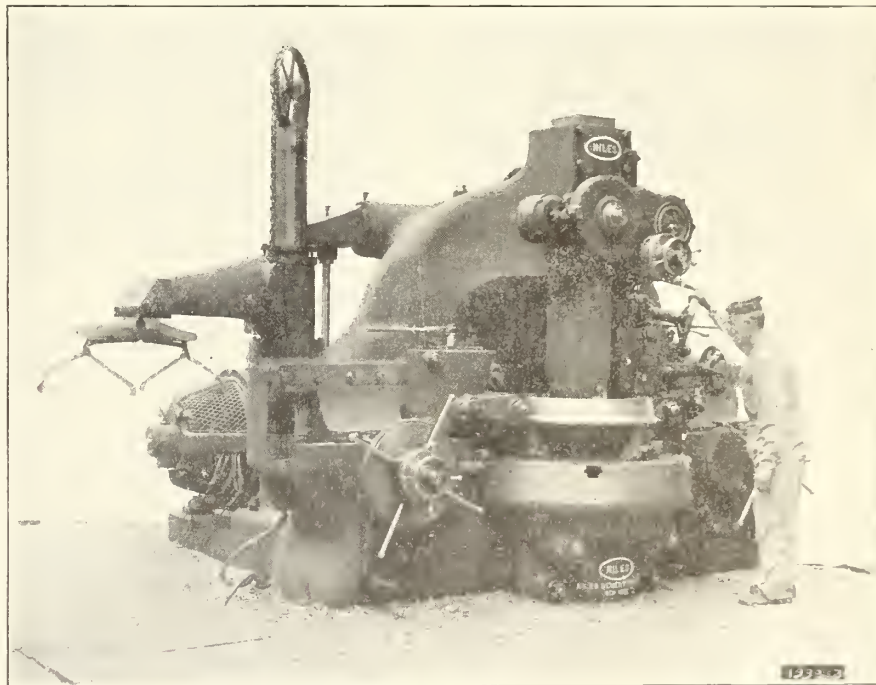
An outstanding feature of this portable threading machine is a high-speed emery wheel which is driven from a pulley shaft at the back of the machine.

Every user of a pipe machine has long felt the want of a small emery stone, for in every shop there comes a time when it is necessary to touch up a die, sharpen a chisel or take a burr off some tool, and in designing this portable pipe machine, the manufacturers had in mind the purchasers' requirements in this connection as well as a high-class pipe machine.

This emery wheel is driven from the pulley shaft at approximately 1,000 r.p.m. and the machine is so designed that when the operator desires to use the emery stone the gears on this shaft can be thrown into neutral and no other part of the machine is running except the motor and emery wheel, which allows him full use of the motor horse power for grinding purposes.

Of Norton Manufacture

The stone is of Norton manufacture, $5\frac{3}{4}$ in. diameter, $\frac{3}{4}$ in. face and proper grade for general grinding purposes. The shaft carrying the stone is of extra large diameter and equipped with three Bunting bronze bushings, with all the bearings running in oil.



A vertical car wheel lathe

Market Conditions and Tendencies

Price Trend on Sanitary and Heating Supplies

Markets at a Glance

H EATING lines during the past two weeks have been well to the front, and much work is still to be done in this branch of the trade. During the more seasonable weather that has been experienced of late, many furnaces and heating plants have been started for the first time this fall, and in many cases, it has been found that repairs were required, with the result that much repair work is in progress.

In Montreal considerable price cutting, in certain plumbing lines, is going on at the present time. 30-gallon range boilers being one of these lines, and

a cut of almost 10 per cent. being made in soil pipe and fittings.

Stronger tendencies are noticeable in lead and solder lines; candle wick, with some lines of pipe-cutters and galvanized sheets have advanced in price, while easier prices are noted on mica, and copper and brass sheets, rods and tubing. Pig iron has declined \$1 per ton. Ingot metal prices, especially tin and lead, are stronger, with a better condition existing in copper.

Collections show a slow but steady tendency towards improvement.

Montreal Markets

MONTREAL, Nov. 13.—Local dealers and jobbers report that business has been very active during the past two weeks in all seasonable lines, with a noticeable activity in heating equipment.

Prices on range boilers are steady, with the exception of the 30-gallon size, which is now being quoted at lower figures. Lower prices are now in effect on soil pipe and fittings. Slightly higher prices are effective on solder. The scrap metal market is reported by dealers to be very quiet, with prices at extremely low levels.

The ingot metal market shows a somewhat improved tone this week, especially in tin, which has developed some strength. The situation generally is quite favorable and higher prices in most lines would not be surprising.

PRICES ON RANGE BOILERS REMAIN FAIRLY STEADY

Montreal.

Prices on range boilers remain steady at figures issued two weeks ago, with the exception of the 30 gallon size, which is now being quoted at \$8.75 net. Lists and discounts prevailing locally are given herewith:

RANGE BOILERS—

5 Gallon	\$13 50
12 "	14 00
18 "	15 00
25 "	16 50
30 " special	8 75
35 "	20 50
40 "	22 75
42 "	38 00
66 "	60 75
82 "	74 00
100 "	103 00
120 "	117 00
144 "	164 00
168 "	187 00
192 "	210 00

Discount Standard, 45 per cent.; Extra heavy, 40 per cent.

LEAD AND ZINC GOODS SELLING SEASONABLY

Montreal.

Lead and zinc goods are reported by dealers to be selling in fairly good volume, and sales during the past two weeks

have been very satisfactory. Prices on some lines show slight fluctuations, but on the whole remain quite steady.

Prices in effect locally are given herewith:

LEAD AND ZINC PRODUCTS—

Lead pipe, per 100 lbs., up to 2 in.	14 50
Do., 2 in. to 8 in.	15 50
Do, 8 in. and over.	16 50
Lead waste, per 100 lbs.	15 50
Discount 10 per cent.	
Lead wool, lb.	0 13
Lead sheets, 2½ lbs., sq. ft. lb.	\$ 10½
Lead sheets, 3 to 3½ lbs., sq. ft. lb.	0 10
Do., 4 to 8 lbs., sq. ft. lb.	0 09½
Cut sheets, ¾ c. lb. extra and cut sheets to size 1c. lb. extra.	
Soldier, wiping, lb.	0 25¼
Solder, commercial, lb.	0 28¾
Solder, strictly, lb.	0 28¾
Solder, guaranteed, lb.	0 29
Solder wire, lb.	0 39
Zinc sheets, casks	0 11
Do., broken lots	0 12

SOIL PIPE PRICES FIRM AT RECENT DECLINE

Montreal.

Prices on soil pipe and fittings are firm, following the recent decline. Trading in this line is reported by dealers as being quite brisk during the past two

weeks. Discounts in effect locally are given herewith:

SOIL PIPE—

2 and 3 inch	27%
4 inch	32%
5 and 6 inch	27%
8 inch	5%

FITTINGS—

2 to 6 inch	44%
8 inch	5%

CLOSET GOODS SELLING IN GOOD VOLUME

Montreal

A good volume of business in closet goods has been done during the past two weeks. Prices are unchanged and are quoted locally as follows:

CLOSET COMBINATIONS—

Low Down Outfits,	each
Closet, standard outfit, oak	24 00
Do., post hinge seat	24 50
Do., oak vitro or Pussyfoot	24 00
Do., post hinge seat	24 50
Do., mahogany vitro or Pussyfoot, post hinge seat and cover	27 00
Do., vitreous china, oak post hinge seat and cover	29 00
Do., vitreous china, mahogany post hinge seat and cover	29 50
Do., white vitro or Pussyfoot, mahogany post hinge seat and cover	30 00
Do., enamelled iron tank, oak post hinge seat and cover	28 75
Do., enamelled iron tank, mahogany post hinge seat and cover	29 00
Add for ¾" valve on supply pipe	1 25
Add for spud	0 60
Add for reverse trap bowl	1 50
Add for syphon jet bowl	7 00
Deduct for supply pipe	0 80
Deduct for floor hinge	0 60
Richelieu bowl	2 00
Washdown bowl with spud	9 90
Reverse trap bowl with spud	9 90
Syphon jet bowl with spud	15 40

CLOSET SEATS—

Oak post hinge seat and cover	3 85
Oak wood strip seat and cover	3 50
Mahogany finish post hinge seat and cover	4 05

CLOSET TANKS—

Low down, oak vitro or Pussyfoot with fittings less seat	12 50
White vitro or Pussyfoot with fittings, flush elbow and supply	16 50
Vitreous china tank with fittings, flush elbow and supply	16 00
Enamelled iron with fittings, flush elbow and supply	18 90

TRADING IN PIPE FITTINGS FAIRLY ACTIVE

Montreal.

Trading in pipe fittings during the past two weeks has been of a fairly active nature. Dealers report that the trade are seasonably busy and that good sized orders for fittings are coming in.

Discounts in effect locally are given herewith:

PIPE FITTINGS—Malleable	
Piece list	63%
Bushings	15%
Tinned straps, net per lb.	0 20
Sd. unions	30%
Railroad unions (black)	35%
Railroad unions (galv.)	40%
Crossovers	25%
CAST IRON—	
Sd. elbows, tees, crosses, cap reducers, etc.	10%
Extra heavy ditto	10%
Plugs	10%
Bushings	15%
Eccentric reducers	5+
Drainage fittings (black)	22½%
Drainage fittings, (galv.)	27½%
Flanged unions	10%
Companion flanges	22½%
Flanged fittings	20%
Branch tees	5%
Nipples, ½ to 4" close and short	45%
Ditto, long	50%
Ditto, 4½ to 8" close and short	35%
Ditto, long	40%
Couplings, 4" and under	25%
Ditto, 4½ and larger	5%

PRICES ON COTTON WASTE REMAIN STEADY

Montreal.

Dealers in cotton waste report that sales in this line have been of a fairly active nature for some time past. Prices remain steady and are in effect locally as follows:

COTTON WASTES—		Per lb.
Cream polishing	0 24	
White, XXX extra	0 20	
White, XX grand	0 18½	
White, XLCR	0 17	
X Empire	0 15½	
X Press	0 14	
Colored—		
Fancy	0 15½	
Lion	0 14	
Standard	0 12½	
Popular	0 10½	
Keen	0 08½	
Wool Packing—		
Arrow	0 25	
Axle	0 21	
Anvil	0 17	
Dominion Wipers—		
White cotton	0 18	
Colored cotton	0 14	

COMPRESSION GOODS SELLING SEASONABLY WELL

Montreal.

Sales in compression goods are reported as being quite seasonal. Prices are unchanged and are in effect locally as follows:

VALVES AND BIBBS—		
Compression work, standard	48%	
Fuller work, standard	30%	
Quick opening, compression bibbs	45%	
Bath cocks, quick opening	53%	
Bath cocks, compression	45%	
Basin cocks, quick opening	50%	
Flatway stop and waste cocks, std.	56%	
Roundway stop and waste cocks, std.	42%	
Brass steam cocks, standard, ¼ in.	25%	
Radiator valves, standard	55/25%	
Do., removable discs	55/95%	
Globe, angle and check valves, std.	25%	
Gate or straightway	25%	
Emco globe valves	33%	
Emco check valves	33%	
Jenkins globe, angle, check and swing check	plus 15%	
Jenkins gate or straightway	plus 11%	
Jenkins iron body, globe and angle	plus 10%	
Jenkins iron body, gate	12%	
N. P. "O" and "S" traps	34%	

Heavy Japanese Buying May Advance Sheets 25 Cents

THE progress of buying of iron and steel in America for Japanese account has been watched by the metal trades with much interest, since the recent catastrophe opened up a tremendous market almost overnight. Sanitary Engineer has secured information to the effect that the Japanese Government has bought all the black and galvanized sheets of 28, 30, 31 and 32 gauge which can be produced in Europe until early next summer and are now placing larger orders in America. To date, orders for 120,000 tons of

sheets have been placed in the United States, and it is understood that orders for another 80,000 tons are about to be placed. Most U. S. mills will be busy on this business up until February at least, and in some cases until May. As a result of this large market, it is the opinion of certain Canadian metal interests that sheets may show an increase of at least 25 cents by next spring. Some Canadian firms are booking heavily on sheets at present in order to be sure of delivery for next spring.

SALES OF ENAMELLED WARE CONTINUE STEADY

Montreal.

Sales of enamelled ware have shown up well during the past two weeks. Prices are steady and are quoted locally as follows:

ENAMELLED WARE—

Sinks, flat rim—	1 only	2 only	3 only
16 x 24	\$ 7 50	\$ 7 40	\$ 7 30
18 x 30	8 70	8 60	8 50
20 x 30	9 90	9 80	9 70
Bath tubs, roll rim, 4, 4½, 5 feet, 24 to 30 in. wide			51 40
Bath tubs, 5½ feet.			57 10

Lavatories—

17x19 in. Apron F139 or P4045	15 30
18x24 in. Apron F154 or P3845 or P3847	23 60
18x21 in. Apron F169 or P4205	17 60
17x19 in. Roll rim. F241 or P4345	12 60
Less 35 per cent.	

SALES IN WROUGHT PIPE SHOW UP WELL

Montreal.

Sales in wrought pipe have shown up well during the past two weeks. Prices show no change and are still being based on list No. 59, which was issued some time ago.

WROUGHT PIPE

Price List No. 59. April 24th, 1923.
Standard Butt Weld Pipe S/C per 100 feet.

Size	Steel Blk.	Gen. Galv. Blk.	Wrot. Blk.	Iron Galv.
½ in.	6.00	8.00	.....	.....
¾ in.	4.32	6.30	7.56	9.60
1 in.	4.32	6.30	7.56	9.60
1 ¼ in.	5.53	6.97	7.82	9.35
1 ½ in.	6.79	8.40	8.55	11.27
2 in.	9.69	12.07	13.77	16.32
2 ½ in.	13.11	16.33	18.63	22.08
3 in.	15.68	19.53	22.28	26.40
4 in.	21.09	26.27	29.97	35.52
5 in.	33.35	41.54	.....	.....
6 in.	43.61	54.32	.....	.....
8 in.	56.12	69.00	.....	.....
10 in.	66.49	81.75	.....	.....

Standard Lap Weld Pipe S/C per 100 ft.

Size	Steel Blk.	Gen. Galv. Blk.	Wrot. Blk.	Iron Galv.
2 in.	24.42	29.60	33.30	38.85
2 ½ in.	36.27	44.46	50.31	59.09
3 in.	47.43	58.14	65.79	77.27
3 ½ in.	57.04	69.92	79.12	92.32
4 in.	67.58	82.84	93.74	110.09
4 ½ in.	78.74	96.52	1.14	1.33
5 in.	91.76	112.48	1.33	1.55
6 in.	1.19	1.46	1.73	2.02
7 in.	1.55	1.90	2.21	2.62
8 in.	1.63	2.00	2.23	2.75
9 in.	1.87	2.30	2.68	3.17
10 in.	2.23	2.83	.....	.....
12 in.	2.14	2.62	3.04	3.58
14 in.	2.76	3.38	3.91	4.01

RADIATOR AND BOILER SALES FAIRLY ACTIVE

Montreal.

Dealers in radiators and boilers report that sales in this line are holding up well, and continued good business is expected for some time.

No changes have taken place in the list or discounts, which are in effect locally as follows:

RADIATORS AND BOILERS—

Radiator list prices are for 1, 2, 3, 4 and 5 column radiators, per sq. ft.

45 in. to 38 in., \$1; 32 in., \$1.10; 30 in., \$1.15; 26 in., \$1.20; 23 in., \$1.26; 22 in., \$1.30; 20 in., \$1.36; 18 in., \$1.40; 16 in., \$1.50; 14 in., \$1.55; 13 in., \$1.60. Discount 44 per cent for hot water, and 45 per cent. for steam.

Wall radiators—5 ft., \$1.15; 6 ft., \$1.10; 7 ft., \$1.05; 9 ft., \$1.05; 12 ft., \$1.05; Discount 41 per cent.

Boilers—Round water boilers, sizes from 0 to 10, 52 per cent. off list. Square or sectional hot water or steam boilers, 15 in., 3 per cent. with Ontario Government trimmings, list. Square or sectional water boilers, 19 in. to 36 in., 9 per cent. Square or sectional steam boilers, 19 in. to 26 in., 5 per cent. Ontario Government trimmings, list plus 7 per cent. Square or sectional water or steam boilers, 48 in., list plus 10 per cent. With Ontario Government trimmings, list plus 18 per cent.

Round steam boilers, standard trimmings, 16 per cent. Ontario Government trimmings, 13 per cent.

F.o.b. Montreal, Toronto, Guelph.

SCRAP MARKET SHOWS LITTLE IMPROVEMENT

Montreal.

Dealers in scrap materials report that the market is very quiet at the present time, and little improvement is expected until conditions become more settled in Europe. Average buying prices are as follows:

SCRAP—

Automobile Tires	0 50
Rubber Shoes	0 02
Yellow brass	0 06
Red brass	0 08
Light brass	0 04½
Scrap zinc	0 05
Lead, heavy	0 05
Lead, tea	0 03
Light copper	0 09
Heavy copper	0 11½
Wrought iron, R. Rd. No. 1 per gr. ton	14 00
Malleable scrap (ton)	16 00
Pipe scrap (ton)	8 50
Heavy melting steel	9 50
No. 2 bushing	5 00
Boiler plate	12 00
No. 1 machinery cast	20 00

SHEETS AND PLATES SELLING WELL AT PRESENT

Montreal.

Dealers in sheets and plates report that sales have shown considerable activity during the past two weeks. Prices are the same as issued two weeks ago, and are given herewith:

BLACK SHEETS

10 gauge base	4 25	4 50
12 gauge	4 35	4 50
14 gauge	4 45	4 60
16 gauge	5 05	5 15
18-20 gauge	5 20	5 25
22-24 gauge	5 20	5 35
26 gauge	5 25	5 40
28 gauge	5 35	5 60

GALVANIZED SHEETS

	Queen's Head	Fleur de Lis
18-20 gauge	6 90 7 40	6 90 7 15
22 gauge	7 15 7 65	7 15 7 40
24 gauge	7 25 7 75	7 20 7 45
26 gauge	7 50 8 00	7 50 7 75
28 gauge	7 75 8 25	7 75 8 00
Other Brands—		
10 3/4 oz.	7 75	8 00
28 U. S. gauge	7 25	7 50
26 U. S. gauge	6 85	7 10
24-22 gauge	6 65	6 90
20-18 gauge	6 45	6 70
16 gauge	6 25	6 50

Above prices are for 1/2 ton lots in English iron and 1000 lb. lots in American iron with an extra charge of 25c for less quantities. Extra for sheets 3 ft. wide 28 gauge and 10 3/4 oz. 25c per 100 lbs.

Further extra for sheets 4 ft. wide according to gauge.

TIN PLATE—

20 x 28 x 100 lbs. basis	15 50
20 x 28 IC, 112s	16 00
20 x 28 IC, 112s	18 00
20 x 28 IXX, 56s	11 00
20 x 28 IXX, 56s	12 00

TERNE PLATE—

20 x 28 IC, 112s, 200 lbs.	14 50
20 x 28 IC, 112s, 214 lbs.	15 00

CANADA PLATE—

Half bright, 60s	6 00
Half bright, 52s	5 90
Blued 52s	5 90
Blued 60s	6 00

SOME IMPROVEMENT SHOWN IN INGOT METAL MARKET

Montreal

The metal market shows a somewhat improved tone this week, especially in tin, which has developed some strength. The situation generally is quite favorable and higher prices in most lines would not be surprising.

TIN.—The October statistics were considered favorable and the market has advanced appreciably both in London and New York. Opinions generally are bullish over the next few months, owing to the continued good consumption and gradual disappearance of stocks in the East. The local market is quite strong at 50 cents per pound.

COPPER.—Without any marked advance being recorded, the situation is somewhat firmer and higher prices will probably be ruling in the near future. Any favorable development in connection with the situation in Europe would naturally assist this. The local market is steady at 18 1/2 cents for electro and 18 cents for Chinese.

LEAD.—Although London declined sharply on Nov. 1, prices have receded to some extent and there appears to be a genuine shortage in England. This will mean that Mexican lead will be diverted there, but it will take a little time to relieve the situation. The American market is quiet and does not reflect the

strength in England. The local market is strong at 9 cents per pound.

ZINC.—This metal has been more or less marking time, but the next move should be upward. English galvanizers are well filled with orders and will probably have to buy further quantities in the United States. The local market is firm at 9 1/4 cents per pound.

Toronto Markets

TORONTO, Nov. 13.—Furnaces and other heating equipment have been selling briskly during the past two weeks, and much repair work along these lines is in progress. Jobbing houses handling heating equipment report that business has been very good of late, and that though a good portion of this work has been delayed this season, it is coming through now in a very satisfactory manner.

Some lines of pipe-cutters have been advanced ten per cent., and Queen's Head galvanized sheets have stiffened in price and are selling 25 cents in advance of former levels. Mica has declined considerably, and copper and brass sheets, tubing, and rods are lower. Easier tones are noted in lead and zinc goods. New lists have been established on Stillson and Trimo frames.

Indications locally show that there is a steady, though very slow improvement of late in collections.

BIG DECLINE IN EFFECT ON BRASS PRODUCTS

Toronto.

A discount has become effective on brass sheets, rods, and tubing during the past two weeks.

The new prices figure out about 25 per cent. cheaper than prices formerly quoted. The decline announced herewith is arrived at by two drops in price which have taken place during the past two weeks.

Brass rods, which previously sold at 32 cents per pound, have been reduced to 24 cents per lb. base.

Other prices of brass are given herewith:

BRASS—

Brass rods, 3/4 in. to 1 in. base, lb.	0 24
Brass sheets, 20 ga. and heavier, in rolls, base, lb.	0 29
Brass tubing, seamless, base, lb.	0 34
Toronto discount, 10 per cent. off above prices, which are subject to standard list of brass extras.	

CANADA PLATE PRICES SHOW FIRM TENDENCY

Toronto.

Prices of Canada plates, though unchanged locally, have shown a tendency toward more firmness of late. Sales in these lines have been very good during the past two weeks. A slightly higher level on Welsh polished sheets may be in evidence in the near future. Prices being quoted are as follows:

CANADA PLATES—

	Per American	box Welsh
Ordinary, 75s	5 85	....
Ordinary, 60s	6 00	6 10
Ordinary, 52s	5 90	6 00
Blued, 75s	6 15	....
Blued, 60s	6 00	6 25
Blued, 52s	5 60	6 15
Blued and oiled, 75s	6 25	....
Blued and oiled, 60s	6 10	....
Blued and oiled, 52s .....	....	6 00
Polished, 75s	7 05	....
Polished, 60s	6 90	7 35
Polished, 52s	6 80	7 25

ANTIMONY.—This metal has developed considerable strength owing to absolute cessation of shipments from China. There is considerable inquiry in the market and keen bidders for such parcels are available. Prices in England have advanced considerably and the local market is also strong at 9 1/2 cents for English and 9 cents for Chinese.

LEAD AND ZINC GOODS PRICES ARE REVISED

Toronto.

Prices on lead sheets have been revised slightly. The 2 1/2 lbs. per sq. ft. sheets, which were selling at 12 1/4c. per lb., are now being sold at 12 1/4c. per lb., and the 3 to 3 1/2 lb. sheets, which were selling at 11 1/4c. per lb., are now selling at 12c. per lb., and the 4 to 8 lb. sheets, which were selling at 11 1/2c., now sell at 11c. per lb.

Strictly solder, which sold at 29c. per lb., is now quoted at 31c. and wiping solder, which was selling at 27c. now sells for 28c. per lb.

LEAD AND ZINC GOODS—

Lead pipe, per 100 lbs., up to 2"	14 50
Do., 2" to 8"	15 50
Do., 8" and over	16 50
Lead waste, per 100 lbs.	15 50
Note—Lead pipe is subject to a discount of 10 per cent.	
Lead traps and bends	15%
Lead wool, lb.	0 14 1/4
Lead sheets, 2 1/2 lbs., per sq. ft., per lb.	0 12 1/4
Lead sheets, 3 to 3 1/2 lbs.	0 11 0 12
Do., 4 to 8 lbs., sq. ft. lb.	0 11
Cut sheets, 3/4c. per lb. extra.	
Cut sheets, to size, 1c. per lb. extra.	
Solder, guaranteed, lb.	6 30
Do., strictly, lb.	0 31
Do., commercial	0 26 1/2
Do., wiping	0 28
Do., wire	0 34 1/2
Zinc sheets, casks, lb.	0 11 1/4 0 12 1/4
Do., do., less, lb.	0 12 1/4 0 13 1/4

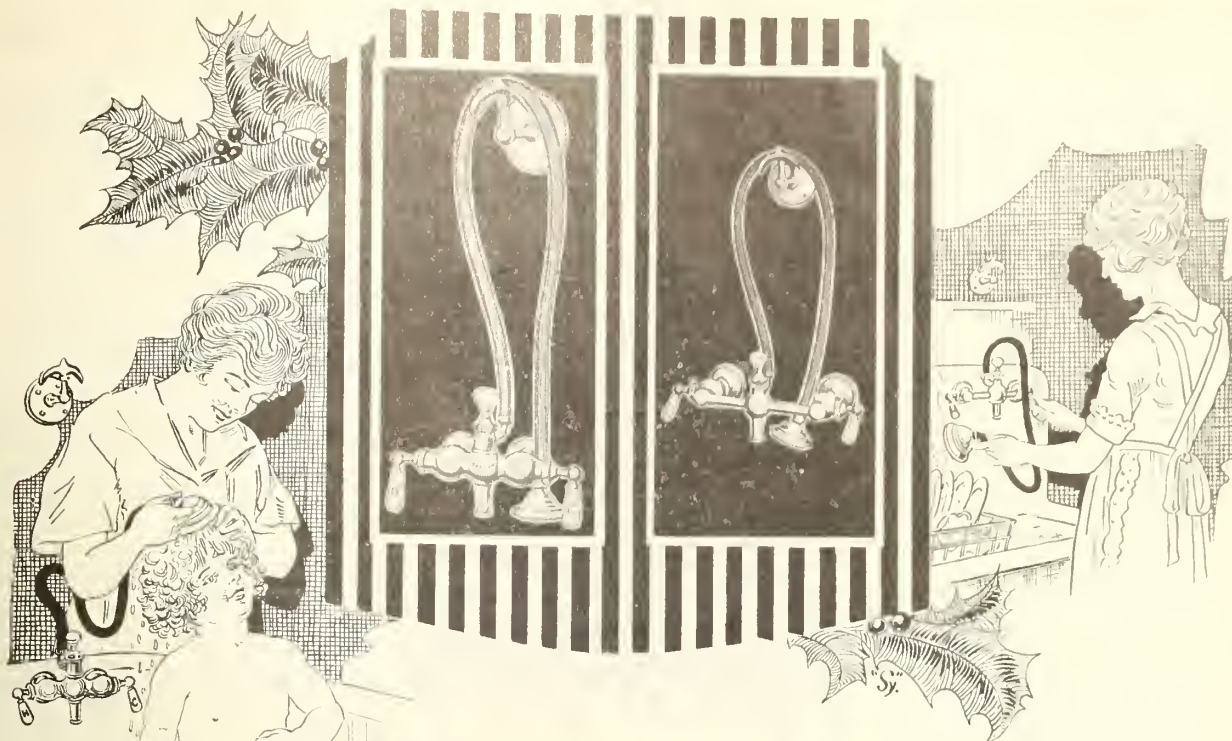
GALVANIZED SHEET PRICES ARE REVISED

Toronto.

Premier and Apollo brands are easier in price and a slight readjustment downward is noted on the 10 3/4 oz. and 28 ga. U.S.

Queen's Head galvanized steel sheets have been advanced 25c. per 100 lbs. The 28 gauge base price on this brand of sheets, which was \$7.25 per 100 lbs., has been changed to \$7.50 per 100 lbs.

The new prices on the other gauges,



Why Not Make This a Plumbers' Christmas?

WHY SHOULDN'T the plumber get his share of the retail trade? For instance a big demand for our Tub Shower Bath Faucet and Combination Sink Faucet for Christmas giving will be created through our advertisements now running in MacLean's Magazine featuring these two sensible Christmas gifts, and you can co-operate by running an advertisement in your local paper.

The people are always clamouring in the Christmas gift season for something which will not be put away on shelves and the giver and gift forgotten. They want an article that will be used 365 days in the year, something really useful, something that will reflect the giver's good wishes in after days.

With a prominent display of the Tub Shower Bath Faucet and the Combination Sink Faucet you are sure to benefit from the demand which these two articles have merited by solving the Christmas gift problem.

H. MUELLER MFG. CO., LIMITED
SARNIA, ONTARIO



Water, Plumbing and Gas Brass Goods and Tools. Forgings in Brass and Bronze. Screw Machined Products, American Factory at Decatur, Ill., U.S.A. Branches: New York, San Francisco and Los Angeles, Cal. Mueller Metals Co., Port Huron, Mich., Makers of "Red Tip" Brass Rod, Brass and Copper Tubing.

as well as the prices on Apollo, Premier, and Fleur de Lis brands, are given herewith:

SHEETS, GALVANIZED—

Premier and Apollo Brands—	per 100 lbs.	
103 1/2 oz., 3 ft. wide	7 10	7 25
103 1/2 oz., narrower	6 90	7 05
28 U. S. gauge, 3 ft. wide....	6 70	6 85
28 U. S. gauge, narrower....	6 50	6 65
26 U. S. gauge.....	6 20	6 35
22 and 24 U. S. gauge	6 05	6 20
18 and 20 gauge,	5 90	6 05
16 U. S. gauge	5 75	5 90
12 and 14 U. S. gauge.....	5 60	5 75
F.o.b. and delivered in Toronto.		
An extra 20c. per 100 lbs. is charged for Keystone and Premier brands copper-bearing sheets.		
Queen's Head		
28 gauge, base	7 50	
26 gauge	7 10	
24	6 80	
22	6 65	
18 to 20 ga.....	6 25	
Fleur de Lis		
28 gauge base	7 00	7 25
26	6 60	6 85
24	6 30	6 55
22	6 15	6 40
18 to 20 ga.	5 75	6 00

MICA PRICES REDUCED ABOUT 16 2-3 PER CENT.

Toronto

A reduction has been put into effect on mica lights for stoves, etc. The former discount, which was 20 per cent. off list, has been supplanted by a discount of 33 1-3 per cent. from list prices. This reduction amounts to approximately 16 2-3 per cent. off former levels.

PIPE CUTTERS UNDERGO ADVANCE IN PRICE

Toronto.

Pipe cutters have been advanced in price, to a level about 10 per cent. above former quotations, on both Saunders' and Barnes' patterns. The new prices are given herewith:

PIPE CUTTERS (Saunders')—	
No. 1, each \$2.40; 2, \$3.50; 3, \$8.85.	
PIE CUTTERS (Barnes')—	
No. 1, \$3.10 each; 2, \$4.10; 3 \$6.85; 4, \$14.50; 5, \$19.75.	

SUBSTANTIAL REDUCTION IN COPPER PRICES

Toronto.

The declining copper market, which has been in existence for the last two months in basic markets, has caused a substantial reduction in local prices of copper products.

This reduction amounts to about 25 per cent. of former prices, particulars of which are given herewith:

COPPER PRODUCTS—	Mont.	Toronto
Price per 100 lbs.—		
Copper bars, 5/8 to 2 in.....	29 00	
Plain sheets, 16 oz., 30 x 72", hot rolled	35 00	35 00
Copper sheet, for polishing, 16 oz. base	45 00	45 00
Copper sheet, for polishing, 16 oz. base	40 00	40 00
Braziers, in sheets, 5 x 8 ft. base	32 00	32 00
Copper tubing, seamless.....	36 00	36 00
Discount on Toronto prices—10 per cent.		
Cut sheets and bars, 5c. per lb. higher.		

COTTON CANDLEWICK ADVANCES TO 73 CENTS PER POUND

Toronto.

The price of cotton candlewick, which has been 69c. per lb., has advanced with all other lines of cotton goods, and is now selling at 73c. per lb.

NEW LIST PRICES ON STILLSON AND TRIMO FRAMES

Toronto.

New list prices have been issued on Stillson and Trimo frames. The new list prices now in effect are given herewith:

STILLSON AND TRIMO FRAMES—

Size	Stillson List price	Trimo List price
6 in., each	0 38	0 40
8 in., each	0 42	0 45
10 in., each	0 50	0 55
11 in., each	0 60	0 70
18 in., each	0 75	0 95
24 in., each	0 95	1 40
36 in., each	1 70	2 20
48 in., each	2 20	2 70
Both of above lines are less 50 per cent from above list price.		

PIG IRON PRICES DECLINE \$1 PER TON

Toronto.

During the past two weeks, pig iron has declined \$1 per ton, making the price of No. 1 \$28.30 per ton and the price of No. 2 \$27.80 per ton. The cause of this further decline is the fact that U. S.A. prices on pig iron have been reduced, this reduction being most noticeable in the Buffalo district.

PIG IRON—

No. 1, per ton	28 30
No. 2, per ton	27 80

INGOT METAL PRICES UNDERGO SOME CHANGES

Toronto.

Though lead has had a good, strong run, one of the leading smelters has reduced the price \$2 per ton.

The reason given for the change is the quieting down of demand, the lead-covered cable makers having been the last class of large-tonnage users to leave the market alone. The decline was partly in sympathy with weakness in other metals. The mark down surprised the trade, especially in view of the constant price advances in London.

Another \$1 per ton advance took place in zinc when the price became 6.35c. East St. Louis. London prices rose 2s. 6d. The rising market has inspired a few purchasers from those who will need the metal shortly. Higher prices are due to firmer ideas of producers rather than a natural advance due to big inquiry.

After the long-drawn-out decline in copper, a better feeling was felt late in the week and prices in primary markets recovered 1/8 cent per lb. This is the first encouragement noted in prices of copper for some period.

Tin took a sharp advance at London. This surprise was partly attributed to the good buying by American traders. On the local exchange Straits deliveries advanced from 1/2c. to 3/4c.

Local market prices on tin stiffened to straight \$46, instead of \$45 to \$46 at the beginning of last week, then early this week, as a result of the sharp English advance, the price advanced on tin to \$47.

Lead has strengthened from \$8 to \$8.25 to \$8.50.

Copper prices remain unchanged at \$18 to \$19.

Local prices are as follows:

INGOT METALS—

Copper, \$18.00 to \$19.00; Tin, \$47.00; Lead, \$8.25 to \$8.50; Spelter, \$9.00; Antimony, \$8.25 to \$8.50; Aluminum, \$23.00 to \$25.00.

CLOSET COMBINATIONS, BOWLS, TANKS AND SEATS SALES FAIR

Toronto

Sales of closet combinations, bowls, tanks and seats during the past two weeks have been selling in fair quantities. Jobbers report that sales in these lines have been up to the average this year, though larger sales were anticipated prior to the beginning of 1923.

Prices now effective are given herewith:

CLOSET COMBINATIONS—	Each
Oak, Wood Tank, Oak W. S. Seat and Cover 24 00	
Oak Vitro Tank, Oak W.S. Seat and Cover 24 00	
Oak Pussyfoot Tank, Oak W.S. Seat and Cover	24 01
Oak Wood Tank Oak P.H., Seat and Cover 24 50	
Oak Vitro Tank, Oak P.H. Seat and Cover 24 50	
White Vitro Oak Woodstrip Seat and Cover 24 50	
White, Pussyfoot Oak Woodstrip, Seat and Cover	25 50
White Vitro Tank, Mahog., P.H. Seat and Cover	26 50
White Pussyfoot, Mahog., P.H. Seat and Cover	26 50
White Vitro or Pussyfoot, oak, P.H. Seat and Cover	26 00
Mahog. Pussyfoot, Mahogany P.H., Seat and Cover	27 00
Vitreous China Tank, Oak P.H., Seat and Cover	30 75
Enam. Iron Tank, Oak P.H. Seat and Cover 28 75	
Vitreous China Tank, Mahog., P.H. Seat and Cover	31 00
Enam. Iron Tank, Mahog., P.H., Seat and Cover	29 00

ADDITIONS OR REDUCTIONS ON ABOVE—	
If supplied less bend or offset, deduct..	0 50
If supplied with reverse trap bowl, add ..	1 50
If supplied with BOT Reverse Trap bowl Add	1 50
If supplied with plain syphon jet bowl Add.	7 00
If supplied with N.P. stop cock on supply Pipe, Add	1 50
If supplied less brass and rubber floor flange and bolts, Deduct	0 60
If supplied less bend or offset, deduct..	0 50
If supplied less N. P. supply pipe deduct	0 60

CLOSET BOWLS—	
Washdown bowl	10 00
Reverse trap bowl	14 00
Syphon jet bowl.....	18 75
"Richelieu" bowl	10 50

CLOSET TANKS—LOW DOWN—	
Oak wood, Tank and inside fittings with bend and supply.....	11 20
Mahog. Wood Tank, and inside Fittings with bend and supply	15 40
Oak Vitro or Pussyfoot Tank and inside Fittings with bend and supply	11 20
White Vitro or Pussyfoot Tank and Inside Fittings with bend and supply.....	13 45
White Enam. Tank K-585 or P.9262, or White Vitreous China Belmeade Tank with fittings (as above).....	19 25

CLOSET SEATS—	
Oak Rich. Seat and Cover to wall.....	3 50
Oak Woodstrip Seat and Cover with bolts	3 50
Oak Woodstrip Seat less Cover with bolts	2 90
Oak Post Hinge Seat and Cover.....	3 85
Mahog. Fin. Post Hinge Seat and Cover	4 05

EAVESTROUGH AND CONDUCTOR PIPE SALES QUIETER

Toronto.

The sales of eavestrough, conductor pipe, elbows, outlets, cut offs, tubes and conductor hooks, have been of a quieter nature. The discount from list prices



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Has National Distribution

To make King Boilers and Imperial Radiators available to every heating engineer in Canada—and through him to every householder in Canada—branches and agencies have been established at strategic points from Halifax to Vancouver.

A twenty-four hour service is thus made available to over 90% of the trade.

This service, plus the well known excellences of King Boilers and Imperial Radiators is a very valuable franchise. Many heating engineers who have recently become "New King" agents report gratifying business.

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228 ST. HELEN'S AVE. TORONTO, ONTARIO
Head Office and Works at St. Catharines

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J. T. Flyth, 100 Standard Bank
Building, Ottawa, Ontario.

Canadian Fairbanks-Morse Co., Ltd.,
106-8 Dupont St., Quebec, P.Q.

BRANCHES
MONTREAL—1 Oak Street.
S. T. Hadley, Manager.

AGENCIES
J. H. Ashdown Hdwe Co., Ltd., J. H. Ashdown Hdwe. Co., Ltd.,
Winnipeg, Man. Saskatoon, Sask.
J. H. Ashdown Hdwe. Co., Ltd., Carroll-Wilson, Limited,
Calgary, Alta. Edmonton, Alta.

HAMILTON—District Representa-
tive, W. Burrow, 115 Victoria
Avenue, S.

T. L. Peek Co., Ltd.
1038-40 Homer Street.
Vancouver, B.C.

F. S. Coombs, 136-8 Lower Water
Street, Halifax, N.S.

on the trough and pipe is still 65 and 5 per cent., and the discount from the list prices of fittings, such as elbows, cut offs, etc., is as before, 50 and 10 per cent. Some of the list prices are as given herewith.

TROUGH (Eave)—

O. G. Square Bead—	Per 100 ft.	Per 100 ft.
8 inch	\$15 90	15 inch.....\$34 50
10 inch	17 70	18 inch.....44 00
12 inch	21 20	
O. G. Round and Half Round—		
8 inch	16 90	15 inch.....35 50
10 inch	18 70	18 inch.....45 00
12 inch	22 20	

Less 65 and 5 per cent.

PIPE (Conductor)—

Plain, round or corrugated	Per 100 ft. in 10 ft. lengths
2 in., in 10 ft. lengths, list.....	18 40
3 in., in 10 ft. lengths, list.....	22 30
4 in., in 10 ft. lengths, list.....	29 60
5 in., in 10 ft. lengths, list.....	48 00
6 in., in 10 ft. lengths, list.....	58 80

Less 65 and 5 per cent.

CONDUCTOR ELBOWS—

Plain, round or round corrugated:	
2 inch, list	\$ 5 25
3 inch, list	6 00
4 inch, list	10 50
6 inch, list	29 00

Elbows, outlets, cut offs, tubes and conductor hooks, list less 50 and 10 per cent.

PIPE FITTING PRICES FIRM AND UNCHANGED

Toronto.

Prices on pipe fittings, both in malleable and cast iron, are firm and unchanged in price. Prevailing discounts are listed herewith:

PIPE FITTINGS—

CAST IRON FITTINGS—	
Elbows, tees, etc., standard sizes.....	10%
Plugs, solid, countersunk and std.....	10%
Bushings	15%
Flanged unions	17½%
Flanged fittings	20%
Drainage fittings, black.....	22½%
Do., galvanized	27½%
C. I. Stop cocks, up to 4"	25%
C. I. Stop cocks, up to 4" with brass plug ..	15%
Ringhangers	30%

MALLEABLE FITTINGS—

Bushings	15%
Hex. nipples, R. & L.....	25%
Steam cock wrenches	30%
Union ells and tees.....	40%
Boiler fittings (old style).....	32½%
Do., (new style)	27½%
Lip unions, all sizes.....	30%
Dart unions, blk. up to 2".....	27½%
Dart Unions, blk. 1½" also 2½" and over	10 and 10%
Wrought nipples to 4" close & short.....	45%
Wrought nipples up to 4" long.....	50%
Wrought nipples, 4½ in. and up long	40%
Wrought nipples, up to 4" close & short.....	45%
Do., 4½" and up, close and short.....	35%
Malleable fittings, sold from price list, less ..	63%

PRICES ON BOILER TUBES FIRM AND UNCHANGED

Toronto.

Boiler tube sales have been well up to the average. The prices on boiler tubes remain the same as quoted formerly in the Sanitary Engineer, the 2 inch seamless selling at 21½c. per ft.

Prices in force at present are as follows:

BOILER TUBES—

	Seamless	Lapweld
1 inch	20 00	.....
1¼ inch	22 00	.....
1½ inch	21 00	.....
1¾ inch	24 50	24 00
2 inch	21 50	20 00
2¼ inch	24 50	23 00
2½ inch	29 00	21 50
3 inch	34 00	31 00
3½ inch	39 50	35 50
4 inch	50 00	45 00

Prices per 100 ft., f.o.b. Montreal and Toronto.

SALE OF BRASS GOODS IS SEASONABLE

Toronto.

Prices remain unchanged on brass goods. Seasonable sales have been recorded in these lines. Current prices are as follows:

BRASS GOODS—

BATH COCKS (Compression)—	
N. P. brass handles or indexed No. 3825	3 78
No. 4 Std. Comp. Double Bath, No. 3829F	4 51
Ditto with China Index, No. 3830F.....	4 51
BATH COCKS (Quick Opening)—	
Brass handle on top, No. 3850 F.....	4 59
China handle on top, No. 3850 F.....	4 72
Quatern Top China Hdle. A. 3200.....	4 75
Brass handle on side, No. 3851F	4 95
(less Jewell's cup)	
China handle on side No. 3852 F.....	5 00
(less Jewell's cup)	
Quatern Side China Hdle. A3500.....	5 15
A2395 Mueller type Shower Faucet.....	9 25
¾ in. N. P. Brass Supply Pipes.....pair	2 20
½ in. N. P. Brass Supply Pipes.....pair	2 30
½ in. Galvanized Iron Nickle Plated Supply Pipes	2 05
Waste and overflows, 19 ge. 1½ in.	
T. B. L.	4 00
1¼ or 1½ Overflow and Waste 18 gauge, N. P. on rough	3 00
1" T.B.L. Overflow and Waste, 18 gauge, N. P. on the rough	4 00
Deep Seal Por. S. N. P. traps, no vent ..	3 55

LAVATORY FITTINGS

Riley Basin Cocks China Index, per pair	7 00
Riley Jr. Basin Cocks, China Index, per pair	6 00
Adanac Basin Cocks, Brass Handle, No. 3632, per pair	4 68
Adanac Basin Cocks, China Handle, No. 3635, per pair	5 20
Quatern Basin Cocks, side China hdle., A2000, per pair	5 00
Quick Opening Basin Cocks, Brass Hdle. No. 3630, per pair	3 70
Quick Opening Basin Cocks, China Handle, No. 3633, per pair	4 28
Quatern Basin Cocks, Top China Hdle. A1900, per pair	3 80
Fuller No. 0 Basin Cocks, Brass Handle, No. 3650, per pair	4 10
Fuller No. 0 Basin Cocks, China Handle No. 3651, per pair	5 04
Midget No. 0 Basin Cocks, No. Index, No. 3623, per pair	3 10
Midget No. 0 Basin Cocks, With Index, No. 3623, per pair	3 10
¾ in. N.P. Brass supplies to wall or floor ¾ in. Galvd. supplies N. P.	2 20
1¼ in. N.P.S. Traps to floor No Vent 20G No. 4458	3 46
1½ in. N.P.S. Traps to floor with Vent 20G No. 4462.....	4 53
1¼ in. N.P.P. Traps, No Vent 20G No. 4450	2 74
1½ in. N.P.P. Traps No Vent Toronto By-law No. 4450	2 97
1¼ in. N.P.S. Traps with Vent Toronto By-law No. 4462	4 98
1½ in. N.P.S. Traps with Vent Toronto By-law No. 4462	6 67
2 in. N.P.S. Traps with Vent Toronto By-law No. 4462	14 00
Patent Overflow basin plugs	0 71
Pop up waste	5 00
Unique waste China Knob	5 50
Unique waste China Index	5 00
1¼ in. Deep Seal Trap No Vent.....	3 75
1½ in. Deep Seal Trap No Vent	6 00
1¼ in. Elliptic Trap	6 50
1½ in. Elliptic Trap	9 00
Whirlpool N.P. Traps list prices less....	15%

SALES OF RADIATORS AND BOILERS STILL VERY ACTIVE

Toronto.

Sales of radiators and boilers still continue to be active, much installation work still being in progress as well as repair jobs, many of the latter having been left very late this season.

Dealers report that much furnace repair and heater work has been started during the first half of November and still continues on a wide scale. Prices on radiators and boilers are given herewith:

RADIATORS AND BOILERS—

Revised radiator list prices are for 1, 2, 3, 4 and 5-column radiators per square foot.
38 in., \$1; 32 in., \$1.10; 30 in., \$1.15; 26 in., \$1.20; 23 in., \$1.26; 22 in., \$1.30; 20 in., \$1.36; 18 in., \$1.40; 16 in., \$1.50; 14 in., \$1.55; 13 in., \$1.60.

Discount on 2, 3, 4 and 5 column standard sizes, 44 per cent. for water and 45 per cent. for steam.

Discount on 1-column standard size, and 2, 3, and 4-column hospital sizes 36 per cent. for water and 37 per cent. for steam.

Discounts on 1 column hospital size water 22 per cent. Steam 23 per cent.

Wall radiators—5 ft., \$1.15; 6 ft., \$1.10; 7 ft., \$1.05; 9 ft., \$1.05; 12 ft., \$1.05. Discount 41 per cent.

BOILERS—

Water:

Round 52 per cent. off list. Square 8 per cent. off list.

Steam:

Round. 13 per cent. off list; Square, list plus 7 per cent.

FIRM PRICES MAINTAINED ON COMPRESSION GOODS

Toronto.

During the past two weeks no changes have occurred on compression goods. Sales have been fair in these lines.

Some of the best selling lines are quoted herewith, with the prices or discounts applying to same.

COMPRESSION GOODS—

Compression stops No. 3450 brass fin., ½ inch, each.....	0 86
Compression stops, No. 3450, N.P., ½ inch, each	1 01
Lavatory stops, No. 3466, N.P., ¾ in., ea. 1 21	
Do., No. 3468, N.P., ¾ in., each.....	1 21
Compression stop and wastes, No. 3483 ½ inch	0 89
Compression stop and wastes, ¾ in., 1 29	
Brass finished bibbs, ½ in., No. 3000, each	0 86
N.P. finished bibbs, ½ in., No. 3030, ea. 1 01	
Brass hose bibbs, ½ in., No. 3001, ea.....	0 99
N.P. hose bibbs, ½ in., No. 3001, ea.....	1 14
Loose flange bibbs, ½ in., N.P. No. 3208	1 43
Loose flange hose bibbs, N.P. ½ in. N. P. No. 3029	1 56
Compression Bibbs No.'s 3001-3041.....	48% Off
Compression Bibbs No.'s 3053-3058.....	43% Off
Compression Bibbs, No.'s 3084-3085.....	49% Off
Quick Opening Comp. Bibbs, 3100-3115	45% Off
Quick Opening Comp. Bibbs, 3116-3119.....	45% Off
Quatern Q. O. Bibbs, A200, A1002.....	45% Off
Ball or roller bearing, self-closing, 3338-3850	40% Off
Stops also stop and waste cocks—	
Compression, 3450-3453	48% Off
Compression, 3462-3463.....	43% Off
Compression, 3466-3479	45% Off
½ inch as 3483 listed at \$32.40 doz. less 67%	
Urinal cocks, compression, 3500-3508.....	25% Off
Sill and boiler drain cocks, 3560-3568.....	50% Off
½ and ¾ list only used.	
Add 10c net for N. P. or finished.	
Boiler Drain cocks, No. 3571, net.....	0 72
Bath cocks, quick opening	53%
Bath cocks, compression, plain hdle.....	45%
Bath cocks, compression, indexed hdles.....	45%
Basin cocks, quick opening.....	50%
Basin cocks, compression	36%

FIRM PRICES EXPECTED TO CONTINUE ON SOIL PIPE

Toronto.

Though considerable cutting is being done in the vicinity of Montreal, no changes have been made in the prices of soil pipe and fittings in and around Toronto.

The season is practically over for soil pipe, etc., and firm prices are looked for during the coming months until spring. Discounts in effect locally are as follows:

SOIL PIPE AND FITTINGS—

2 inch	Less 20%
3 inch	Less 20%
4 inch	Less 25%
5 and 6 inch	Less 20%
8 inch	net
FITTINGS—	
8 inch fittings.....	net
2 to 6 inch	Less 37½%



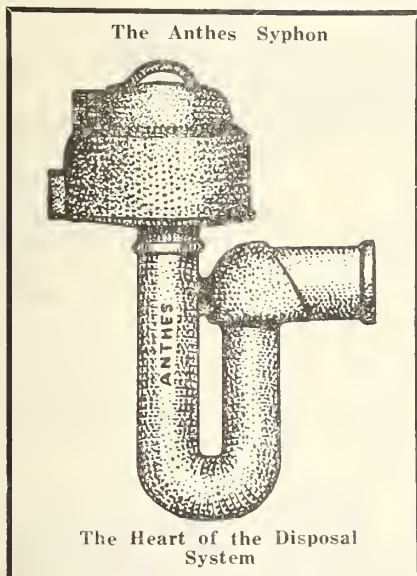
Don't Sit on the Dock



The selling of Sewage Disposal Systems is very much like the gentle art of fishing. You can sit on the dock and wait. If the fish are biting it's great fun—if not, it's misery.

To go trolling is the better way. You cover more ground and go where the fish are. Usually you catch bigger fish.

The story of how a Sewage Disposal System will make farm life healthier, happier and infinitely more comfortable is good bait for trolling. Take this story to any farmer in your neighborhood and tell it to him in his own home.



Nine times in ten you hook a fat contract. Worth while, isn't it?

Anthes Foundry

LIMITED

Toronto and Winnipeg

Manufacturers of Cast Iron Soil Pipe and Fittings



FIRMNESS NOTED IN RANGE BOILER PRICES

Toronto.

Prices now in effect on range boilers are firm. No changes have been made in the prices during the past two weeks.

Prices now being quoted are as follows:

RANGE BOILERS—	St'nd'rd	Ex. He'vy
5 gallon	7 43	....
10 to 15 gallon	7 70	....
18 gallon	8 25	....
25 gallon	9 08	....
30 gallon, special net price on standard	9 50	10 50
35 gallon	11 28	12 30
40 gallon	12 52	13 65
52 gallon	20 90	22 80
66 gallon	33 42	36 45
82 gallon	40 70	44 40
100 gallon	56 65	61 80
120 gallon	64 35	70 20
144 gallon . . . . .	....	98 40
168 gallon . . . . .	....	112 20
192 gallon . . . . .	....	126 00

EXTRAS—	Add
For horizontal tapping	1 15
1" Special for gas heater	1 00
Each extra 3" tapping	3 00
Each extra 2" tapping	1 75

The above prices are net and are based on standard range boiler list. Standard at 45 per cent. off and ex. heavy at 40 off, with the exception of 30 gal. standard, on which there is a special net price of \$9.50.

PLUMBERS' OAKUM SELLING IN SEASONABLE QUANTITIES

Toronto.

Prices remain unchanged on all lines of oakum; sales are recorded as seasonable during the past two weeks. Quotations being used are given herewith:

OAKUM—	Per 50 lb. bale
Plumbers' Spun No. 1	3 20
Navy Spun, No. 1	7 50
Navy Unspun No. 1	7 00

VALVES AND COCKS SELLING IN FAIR VOLUME

Toronto.

Check and radiator valves, foot valves and steam cocks have been selling in fair volumes during the past two weeks.

Prices are unchanged from levels formerly quoted by Sanitary Engineer, discounts now in effect being given herewith:

VALVES AND COCKS—	
Radiator valves, std. . . . .	.62 & 20%
Do., removable discs . . . . .	.62 & 20%
Globe Angle and check valves, std.	25%
Gate or straightway	25%
Emco globe valves, std.	20%
Emco check valves, std.	20%
Emco gate valves, std.	35%
Emco J. D. Globe	25%
Jenkins globe, angle and check valves	+15 less 10%
Emco swing check valves, ¾, ½, and 1 in.	35%
Emco swing check valves, other sizes.	28%
Jenkins gate or straightway + 11 less 10%	
Jenkins iron body, globe and angle	+ 10 less 10%
Jenkins iron body, gate	less 12½ & 10%
Jenkins swing check valves + 21 less 10%	
J. M. T. valves	plus 5%
J. M. T. style C valves	net
J. M. T. gate valves	12½ and 10% off
Webber pattern valves	22%
COCKS (Steam)—	
Brass steam cocks, 2½ in. to 3 in.	43%
Brass steam cocks, ½ in. to 2 in.	50%
Brass steam cocks, std., ¼ in.	25%
VALVES, FOOT—	
1¼ in.	Blk. 0 77 Galv'd. 1 16
1½ in.	1 05 1 57
2 in.	1 32 1 98

Winnipeg.

WINNIPEG, Nov. 13.—The colder and more seasonable weather which is being experienced at the present time is having stimulating effects on all lines of heating and stove repair business. Lead and zinc goods remain steady. Bath supply pipes show a slight decline. Candle wick has advanced. Force cups have also moved upward. There is a seasonable demand for galvanized sheets. Quotations on compression goods, eavestrough and conductor pipe and other lines remain steady.

FURTHER ADVANCE IN CANDLE WICK

Winnipeg.

A further advance has been recorded on candle wick and revised quotations are 67c. per lb.

BATH SUPPLY PIPES SHOW A DECLINE

Winnipeg.

A slight decline is recorded on some lines of bath supply pipes. One line of plain 9-16 inch O.D. tube with slip joint nut for half-inch I.P. connection at floor, is quoted at \$2.50 per pair; another line of nickel plated 9-16 inch O.D. and annealed brass tubing with slip joint to connect with ½ inch I.P. is quoted at \$2.75 per pair.

HIGHER QUOTATIONS IN EFFECT ON FORCE CUPS

Winnipeg.

Higher quotations are in effect on force cups with threaded neck and handle and size 4 inch is quoted at \$6.20 per dozen.

SALES OF FURNACES AND HEATERS SHOW UP WELL

Winnipeg.

Dealers report that sales on furnaces and heaters have been exceptionally good and at the present time are said to be brisk. Stoves are selling quite actively at the present time and a continuance of good business is expected as the season advances.

GALVANIZED SHEETS SELLING WELL—PRICES STEADY

Winnipeg.

Dealers report a steady demand for galvanized sheet iron. Quotations in effect are as follows:

GALVANIZED SHEET IRON—

16 G. \$8.25; 18 G. \$8.40; 20 G. \$8.40; 22 G. \$8.55; 24 G. \$8.55; 26 G. \$8.70; 28 G. x 30, \$9.00; 28 G. x 36, \$9.30; 10½ ounce x 30 \$9.40; 10½ oz. x 36, \$9.70.

PRICES ON COMPRESSION GOODS FIRMLY MAINTAINED

Winnipeg.

No change has been made in the prices of compression goods, levels already in effect being firmly maintained. Sales are reported to be quiet on these lines.

EAVESTROUGH AND CONDUCTOR PIPE STEADY

Winnipeg.

Prices on eavestrough and conductor pipe continue steady. Dealers report

that sales have fallen off slightly during the past few weeks.

EAVESTROUGH—

Eavestrough, per 100 ft. 8 in., \$8.98; 10 in., \$6.75; 12 in., \$8.10; 15 in., \$11.25.
Conductor pipe, 2 in., per 100 ft. \$7.43; 3 in., \$8.55; 4 in., \$10.80; 5 in., \$15.30.

ENAMELEDWARE SELLING IN MODERATE VOLUME

Winnipeg.

Prices are steady on enameledware. Sales in this line are reported to be seasonable with prices showing no change.

SOIL PIPE PRICES FIRM AT FORMER LEVELS

Winnipeg.

A seasonable volume of business on soil pipe is reported by dealers. Quotations remain steady and unchanged.

RANGE BOILERS FIRM AT PRESENT LEVELS

Winnipeg.

Prices on range boilers continue firm at levels established some time ago. Range boilers of 30 gallon capacity are quoted at \$12.50.

LEAD AND ZINC GOODS REMAIN STEADY

Winnipeg.

A firm tone prevails on the zinc market and sales locally are seasonable. Local prices show no change.

LAYING OUT TAPERING ELBOWS (Continued from Page 25)

in a reverse manner, and because of the slight curvature, the error is sometimes not noticeable.

More Shallow Tapers Are Developed by Triangulation

It is the best practice to first lay these patterns on a separate piece of paper, and then cut them out on the miter lines; then lay them on the metal, marking them off carefully. Be sure to allow edges, a single edge for one edge and a double edge for the other end to allow for locking. If they are to be riveted, a single edge is allowed on both ends, and the rivet holes are spaced equally along the miter lines we have developed.

Tapers of this proportion can be readily laid out by the sweep method; but where more shallow tapers are met with, there the body of pattern for taper can be developed by triangulation, and the miter line points picked from elevation and set off on similar lines in pattern.

Sydenham Stop Cocks



No. 58 Steam

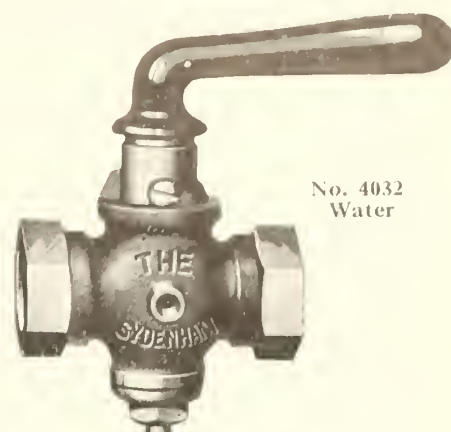
200 lbs. pressure is the test every Sydenham Stop Cock is put under. That's your guarantee that it is:—

Well ground, making good, smooth, tight joints;

Made of prime metal to stand up in any usage;

Made in heavy proportions to withstand strain in installation.

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Carried in stock in all sizes from $\frac{1}{4}$ in. to 2 in.
For Quick Service Ask Your Jobber

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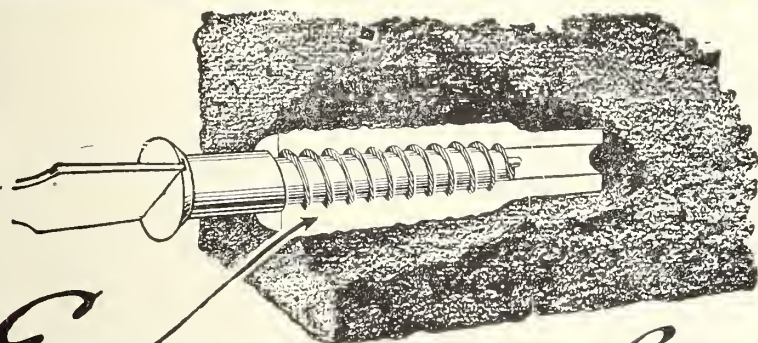
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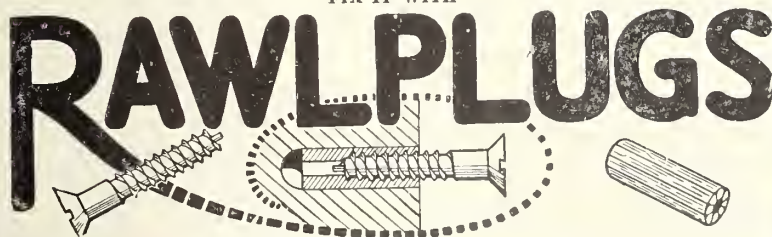
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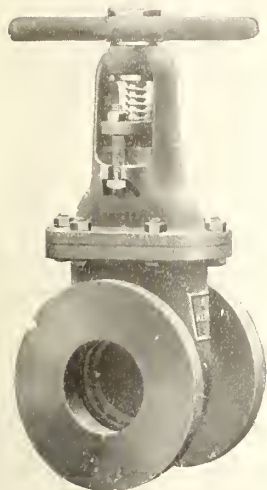
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These gate valves are specially designed to comply with the requirements of the Factory Mutual Fire Insurance Companies' specifications for Sprinkler equipment.

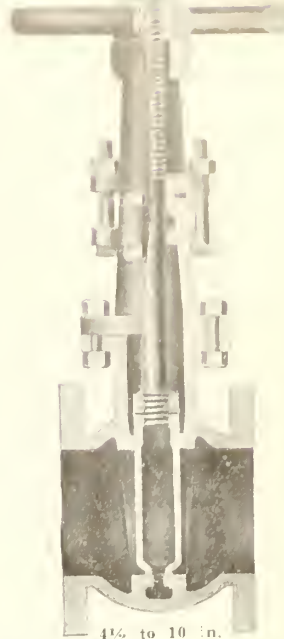
Bronze bushed Stuffing Boxes, and Malleable Iron Glands are employed, and stems are of the dimensions and strength required on this exacting work.

Commercial valves of our manufacture are supplied in this pattern with this equipment, thus insuring a remarkably high-class valve.

The valves are compact in design, sturdy construction, and modern throughout. Iron Body, Bronze Mounted, with outside Screw and Yoke.



No. 62
2½ to 4 in.



4½ to 10 in.

Specify **KERRSTONE** Gate Valves.
Every valve tested.

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Valve Manufacturers

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The wide-awake dealer will make big profits out of this system among customers who now have difficulty with their water supply. It is so simple to operate and costs practically nothing for upkeep.

The outfit consists of an air-tight steel tank which can be placed in the basement, and a "Myers" famous guaranteed pump (hand or power), suitable for pumping air or water, together with pipes and fittings.

Any plumber or gas fitter can easily install it. Every outfit guaranteed to do the work for which it is designed. For small or large dwellings.

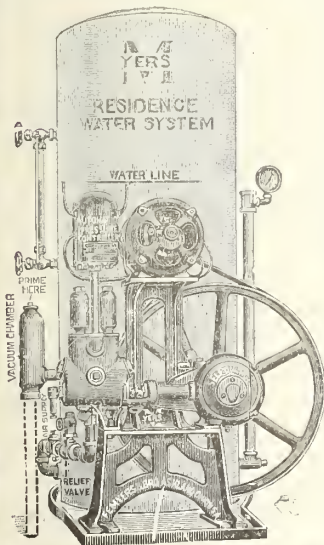
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Burnham Boilers



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It is very conservatively rated. In fact, what the Twin has done this past winter has opened the eyes of all of us. No better cast iron boiler made for low pressure heavy duty work.

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Factory:
St. Catharines,
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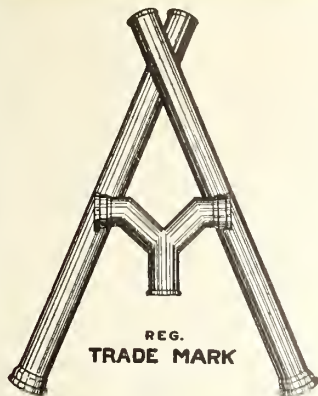
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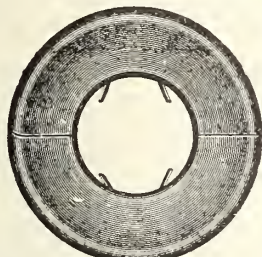
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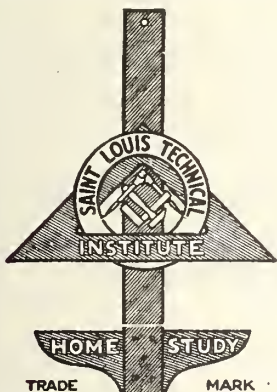
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SANITARY ENGINEER

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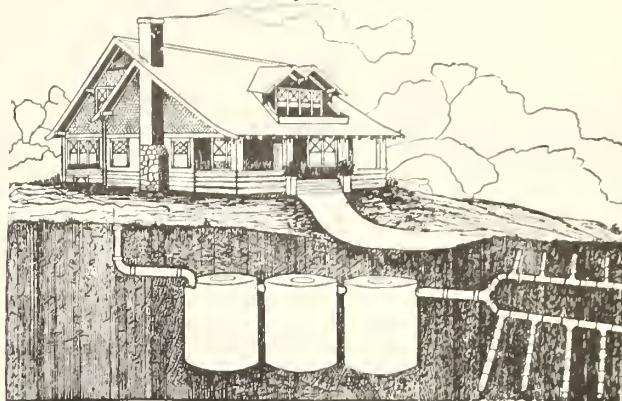
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Christie Concrete Products Co.

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Your Jobber Sells Them

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GALT - ONTARIO

VITRO
NOTROUBLE
TANK

Sanitary Engineer

Plumber and Steamfitter of Canada

Vol. XVII

PUBLICATION OFFICE: TORONTO, DECEMBER 1, 1923

No. 23

"Emco" Concealed Fittings Give the Last Touch of Refinement to Tiled In Baths



AFTER all, it's the trimmings that make the picture.

That's why "Emco" concealed bath fittings have become so popular with the plumbing trade; their nickelled plated, highly polished, exposed metal parts and the white porcelain escutcheons add tone to the well appointed bathroom.

And "Emco" tiled in bath fittings are easily installed; manufactured so that the maximum of adjustment in installation is allowed.

"Emco" concealed bath fittings are used in the better class installations in the homes of Canada. The modern trend of the public is towards concealed bath fixtures and that of the plumbing trade toward "Emco" concealed fittings because of our reputation in the manufacture of plumbing supplies and our guarantee that every article is tested under pressure and guaranteed to give satisfactory service.

If your jobber does not handle "Emco" products, write us.

Empire Brass Mfg. Co., Limited

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The attractive and artistic Design of **“PUSSYFOOT” CLOSET TANKS**

Appeals to all Home Builders and Home Seekers and gives Dignity and Finish to the Bath Room, as well as additional value to the House.

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It is manufactured from carefully selected material of the finest grade and

WILL LAST A LIFETIME

Finished in
Oak
Mahogany or
White

Every part of each Tank thoroughly tested before it leaves our Plant, and our Guarantee label is affixed to the lid.

You pay no more

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YOU

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BETTER

VALUE



The Simple
Silent
and Reliable
action of the Valve
has won for it

FIRST PLACE

amongst Closet Tanks
and

Sanitary Engineers
throughout
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proclaim it

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TANK

MADE”

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Where an Extra Heavy Closet is Required

The "Veteran" extra heavy closet has been designed to meet any requirements where unusual weight and strength must be combined with the other essentials of a good closet.

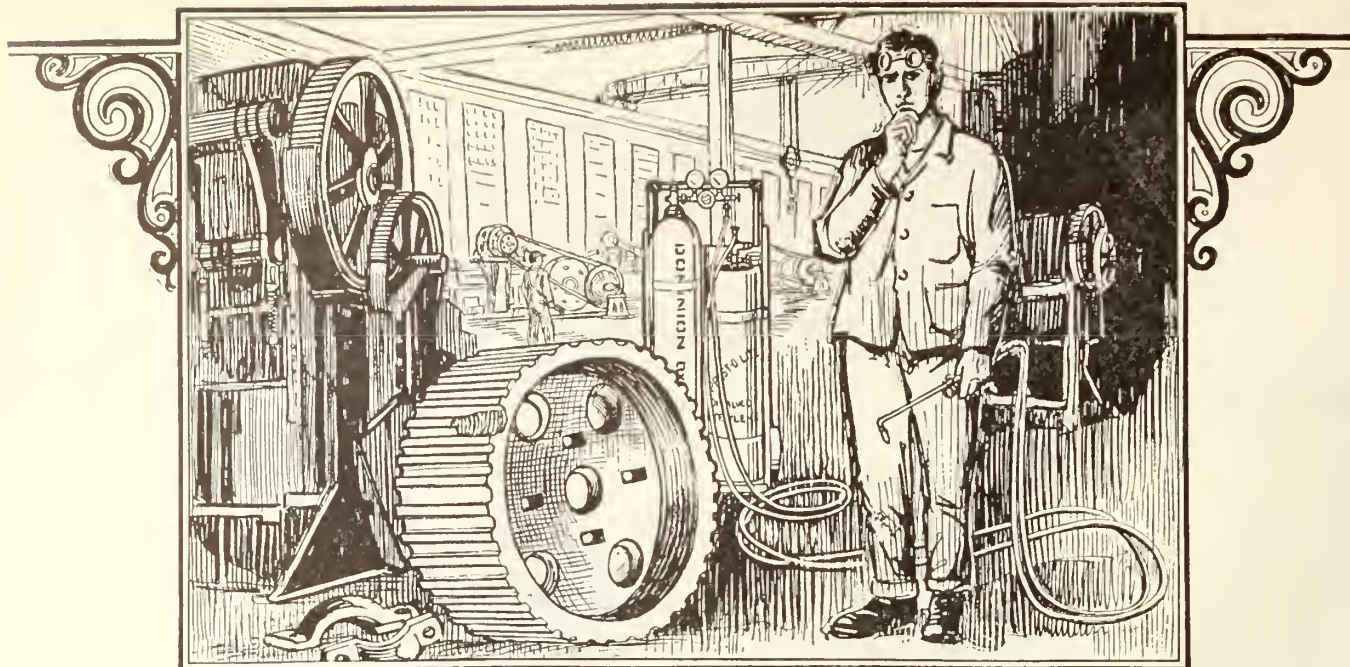
It is of heavy syphon jet construction, splendid strong action, having extended front lip, integral seat and raised rear vent, and being solid vitreous through and through is supremely sanitary.

Its rugged construction, with a net weight of approximately 85 lbs. combined with its hard-burned impervious body and sheer white glazed surface ensure years of unchanging service.

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This service is gratis to *our* customers. It is the plus part of Dominion service which has influenced an ever-increasing list of manufacturing plants, contractors, ship yards, steel plants, and transportation companies to use Dominion Service for their oxygen and dissolved acetylene requirements. You, too, can use Dominion Service to advantage. Your request for information will be given prompt attention.



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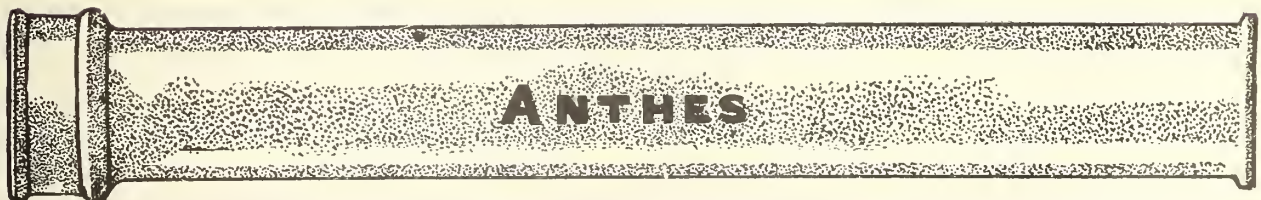
ALL that highest quality of material can provide, all the excellence that skilled workmen can bring to a product; all that stern inspection can insure;—is combined in Anthes Soil Pipe.

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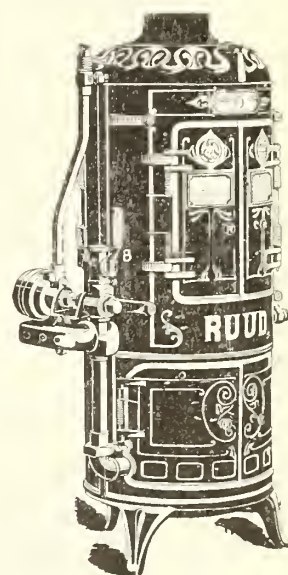
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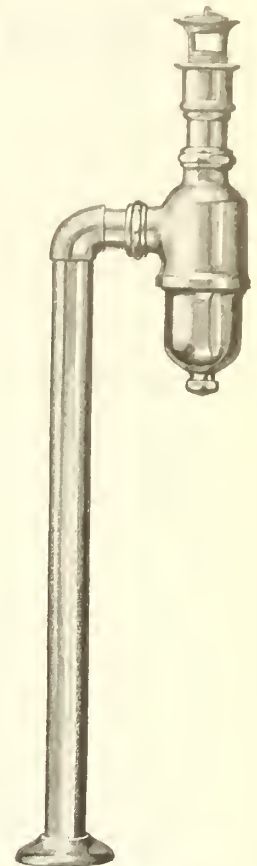
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SANITARY ENGINEER

PLUMBER AND STEAMFITTER OF CANADA

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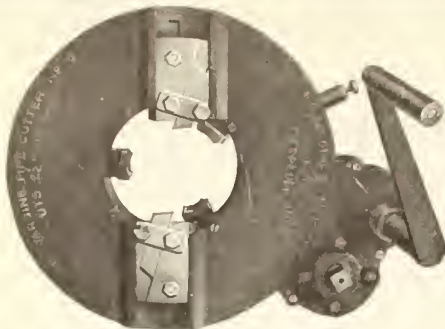
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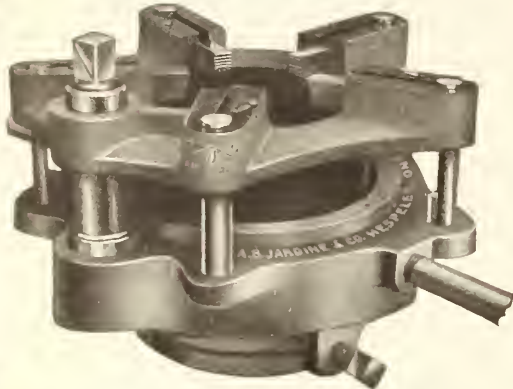
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No. 23

Licensing of Sanitary and Heating Engineers and Tinsmiths for New Sales Tax

Study of New Sales Tax Regulations Should be Made Because Operators Doing Over \$10,000 a Year Will be Licensed and Compelled to Pay Sales Tax to Government on all Sales Commencing January 1 Next

EDITOR'S NOTE:—As the time draws near for the application of the new Sales Tax regulations, which will apply in more definite form to plumbers, heating engineers and tinsmiths than do the present regulations, many enquiries are coming to *Sanitary Engineer* for information concerning the status of these operators under the Act. The matter was fully discussed with an official of the Customs and Excise Department and a clear outline of how the regulations will apply to readers of *Sanitary Engineer* appears in the following:—

AT THE present time there are practically no sanitary and heating engineers or tinsmiths in the group including licensed parties, except for some tinsmiths who have been classed as manufacturers in certain parts of the country, due to the special interpretation of the local Collector of Customs and Excise. It will be recalled that there were a number of test cases held to determine whether retailers making goods to special order were manufacturers for the purpose of the Act, and at first there was a differentiation between tinsmiths and blacksmiths on the ground that the product of the former, even if made to special order, could be sold at retail to anyone else, whereas the product of blacksmiths and tailors would not ordinarily be sold to anyone other than the one for whom the article was made. The line was drawn pretty fine, however, and, in view of the fact that the usual 4½ per cent. sales tax applied in any case, whether the operator was licensed or unlicensed, no very serious attempt was made to enforce the licensing. True, some Collectors insisted upon certain tinsmiths taking out licenses and collecting sales tax, but there were not many of them.

Change the Practice

Under the new regulations, effective from Jan. 1 next, the whole practice is being altered with the idea of eliminating the pyramiding of the tax formerly existing and collecting the tax at the source of manufacture or importation. In order to carry out this principle, it immediately becomes necessary to license all manufacturers of any appreciable size and hold them responsible for the collection of sales tax. In eliminating the pyramiding feature of the tax, it is obvious that most wholesalers, who are licensed under the present regulations, will not be licensed under the new plan. Thus, while many plumbers,

heating engineers, tinsmiths, tailors and others will be licensed for the first time under the new regulations, the total number of licensed parties who will collect sales tax and return it to the government in future is really much less, due to the elimination of most jobbers. It is estimated by the Collector at the port of Toronto that, whereas formerly there were about 5,000 firms licensed in that district alone, there will be only about 3,200 under the new regulations.

The provisions of the new Sales Tax Act to be applied Jan. 1 read as follows: "Every manufacturer or producer who manufactured or produced goods to the value of \$10,000 or more during the fiscal year ending March 31, 1923, or during any fiscal year thereafter, shall take out an annual license with a fee not exceeding two dollars."

Includes Plumbers

The foregoing includes plumbers, heating engineers and sheet metal workers, according to government officials. Special provision is also made for the licensing of firms doing less than \$10,000 business if such manufacturer uses a substantial portion of tax exempt goods, but there will be very little, if any, of this in the plumbing business, as most exempt goods are edibles, metal ores, precious metals, electricity, gas, oil, etc.

It is pointed out that it will be somewhat of an advantage in some ways for the larger operators to be licensed, as will be the case under the new regulations, because of the fact that they will have no capital tied up in sales tax paid on materials on hand. They will be the ones to collect sales tax on their sales and make returns to the government.

A point arises here as to whether sales tax shall be applied on the total value of the transaction, including labor cost, or merely on materials used. On making endeavors to get a ruling on this point, *Sanitary Engineer* was informed by an official of the Department of Customs and Excise that this point would be cleared up any day now. In the past, no sales tax has applied on the labor charges and it was said to be likely that the same policy would be continued, under the new regulations, with sales tax applying only to the charges for material used.

A Problem

Another question propounded by *Sanitary Engineer* was as to whether various appliances and equipment sold at retail by the plumber would be included in the \$10,000 turnover of

manufactured goods, which would determine whether or not he was to be licensed. It was impossible to get a definite ruling on this point as yet, but it was the opinion of the official that these could be classed as retail sales and not included in the amount which determines his status under the Act. After it has been decided, however, whether the plumber is licensed or unlicensed, the sale of such appliances will be treated in the same form as the sale of any other equipment which is partly assembled and installed by a plumber. He will collect the tax and return it to the government on all sales if he is licensed, not paying any tax on the materials when he makes purchases; or, if unlicensed, he will be called upon to pay tax at time of purchase and collect no tax on his own transactions, making no returns to the government.

It will obviously make matters more difficult in some ways for manufacturers and wholesalers selling to plumbers. On sales to licensed plumbers, no tax will apply, and on sales to unlicensed plumbers, tax will apply, so care will have to be taken to differentiate. The onus is put on the buyer to a very large extent, however, to see that he is protected from the duplication of the tax. The matter is simplified if it is kept in mind that the tax is only meant to apply on one transaction of the material, and it is generally at the source of importation or manufacture. It should also be remembered that only a licensed party collects tax and returns it to the government. A wholesaler is licensed if he sells over 50 per cent. of his goods to licensed parties. The matter is best traced by following the trend of certain material as follows:—

A Case Outlined

A licensed manufacturer sells an article to a licensed wholesaler, collecting sales tax of 6 per cent. and making his own return to the government. The licensed wholesaler, if he sells that material to an unlicensed plumber, charges the sales tax along in the price he quotes (not as a separate charge) and the plumber in turn passes it along in his charges to the consumer when he sells the material. If that licensed wholesaler sells the goods to a licensed plumber instead, the latter must quote his license number when buying, state that the goods are for resale, and then the amount of the sales tax paid by the wholesaler when he bought the goods will be deducted from the charge to the licensed plumber, thus leaving the goods free from tax. When the licensed plumber in turn sells the material to his customers, he must make the charge for sales tax of 6 per cent. (included in the charge and not shown separately) and make his return periodically to the government, as laid down in the regulations.

An alternative case would be where the wholesaler is unlicensed, so we will trace the course of material through that channel. The licensed manufacturer sells material to an unlicensed wholesaler, the

sales tax being collected by the manufacturer and returned to the government when he makes the sale. The unlicensed jobber selling that material to unlicensed plumbers carries no special sales tax charge, but if a licensed plumber buys that material from the unlicensed jobber, he must quote his license number, state that the goods are for resale, and then the amount of tax is deducted, application being made by the unlicensed jobber for refund of tax paid on the material when he purchased it. The licensed plumber will, of course, collect the sales tax when he sells the material, thus it is seen that either way the tax is applied only once and by a licensed party.

Buying For Own Use

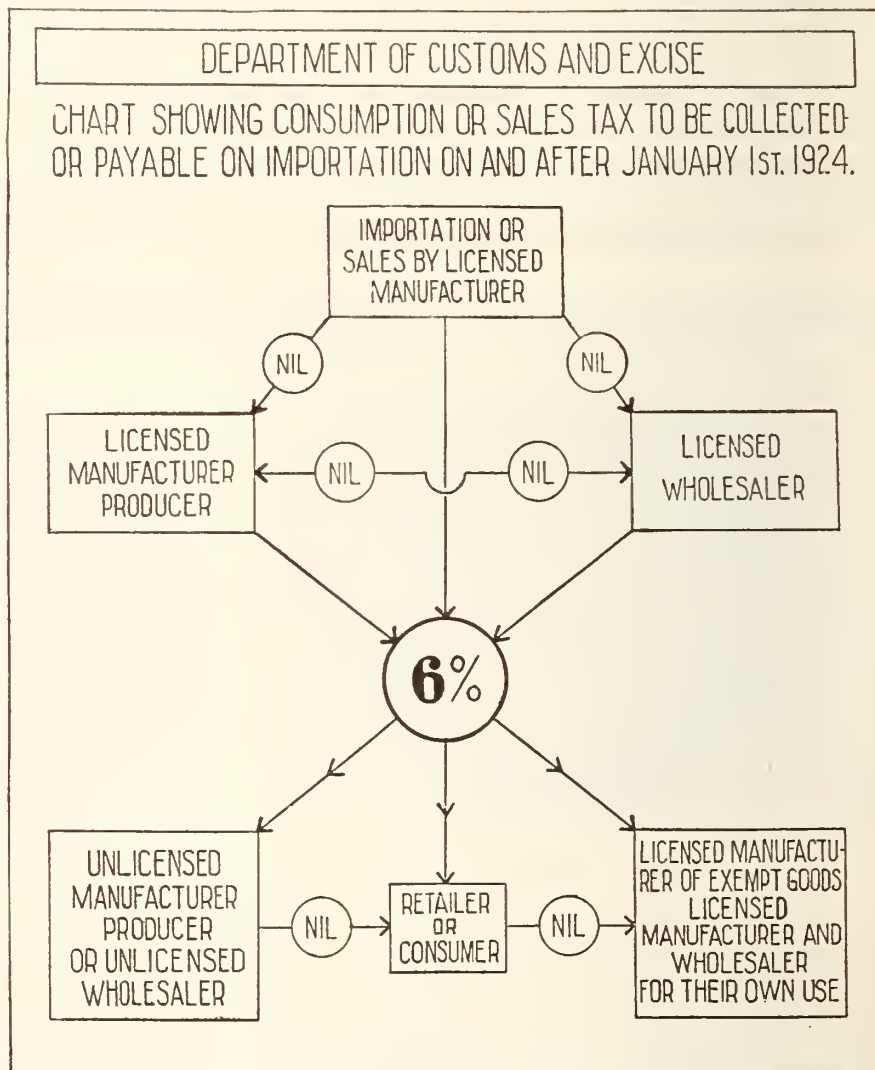
A licensed wholesaler or plumber buying materials for his own use or for consumption in his plant must not quote license number and state that goods are for resale, because, as the final consumer of those goods, he is expected to pay the tax on them.

Sales tax is computed on the price for which the goods are sold, including excise duties on goods sold in bond. It is specially provided that on sales by licensed persons to retailers or consumers the amount of the sales tax must not be shown as a separate charge on the invoice, but be absorbed and charged in the price quoted. On sales by a licensed manufacturer to an unlicensed wholesaler, however, it is provided that the written invoice of the goods shall state separately the amount of the consumption or sales tax.

The subject will be discussed further in the next issue of Sanitary Engineer, when definite rulings on some important points will be outlined.

USE CITY GARBAGE AS FUEL

Toronto.—Controller Gibbons is of the opinion that the city's garbage incinerators might be linked up with a system of steam-produced electricity. He contends that there is a heat of 600 degrees going to waste in the incinerator furnaces that could be used.



Handy reference chart which shows clearly the stages by which the new Sales Tax of 6 per cent., effective January 1 next, is passed along, and on what transactions it is collected.

Urges More Attention to the Merchandising of Heating Equipment

Heating Engineers Too Much Mechanical and Not Strong Enough on Commercial End of Business—Thousands of People Will Buy New Phonograph or Sewing Machine Before a New Boiler Because Other Lines are "Sold"

Address by W. R. GIBSON, general manager Gurney Foundry Co., Ltd., Toronto, before Hamilton Sanitary Engineers' Social Club

DUE to the inability of E. Holt Gurney, president, Gurney Foundry Co., to be present as the chief speaker, W. R. Gibson, general manager of the company, gave the address of the evening at the last meeting of the Hamilton Sanitary Engineers' Social Club. Many interesting points in regard to the heating industry were outlined, these concerning possibilities for business and ways in which heating engineers can best co-operate with other branches of the industry. Mr. Gibson's address follows:

"The relation between most of the manufacturers and the sanitary and heating engineers has been most pleasant and harmonious, and I believe it is improving each year. Yours is a most necessary and useful branch of industry for you have the health of the whole world in your keeping. Yours is an old industry. The aqueducts of old Rome and the sanitary and heating arrangements constructed in those days testify to the age of your profession.

"In our industry we must bear in mind the three parties we have to consider, namely: user, installer and maker. The user is our referee and it becomes necessary for us to get together to minister to his health and comfort if we want to give satisfaction in any community. We should see that we establish efficient and satisfactory relationships that will promote this object.

Traveller Friend of Engineer

"One of the most important factors to be considered in the relationships of manufacturer and installer is as regards sales. In these days of complicated business relations, financial problems, labor troubles, etc., the travelling salesman is the one who is the best friend of the engineer at all times. He is the promoter of better relations. The office, collection department and plant may be trying their best to make it appear to you that we are not anxious for your business but if you will come into our office you will find the traveller there raising Cain about breakages, shortages, credit notes, etc., in your interests. You have no better friend at court than the travelling salesman who calls upon you.

"Our relations are also affected by matters pertaining to manufacture and distribution, such for instance as the

problem of delayed deliveries. Our trouble as manufacturers is the immense variety of stocks and varying quantities which are required. One of our big problems is to take care of the seasonal business in a rush, such for instance as handling all the fall business within the short period of six weeks. It would help out if you could anticipate your requirements and impress on the architect and the builder the necessity for getting specifications in early.

Many New Seating Systems

"One of our big problems is in connection with the tremendous multiplicity of heating systems that are developing, and here your problem is equally great. You should go into them and study them thoroughly so you can co-operate with us in supplying proper equipment when wanted. A great many changes are frequently made in orders after they are sent in and put in process of manufacture. This obviously complicates matters very considerably. In one case a shipment of 126 radiators was at the shipping dock and we had to

cart them back to the plant and take a loop out of them to satisfy some late changes. This is a big loss of time, makes it hard to fill orders promptly and increases production costs. You should prevent your customer altering his plans after you have put your tender in because many heating engineers lose money through such changes.

"In connection with returned goods I would mention that some engineers forget to place tags on material sent back. It is obviously difficult to handle such cases until they are identified. If you at any time overlook putting a tag on material you should follow it up with a letter. Sometimes we send out some wrong tappings or other equipment and we get after the plant manager about it. When the next order from the same customer comes in, however, we frequently note that he has got the dimensions wrong or has a mix-up in the columns on the specifications. It is the old question of the human equation.

Send Orders in Clearly

"The office is a much abused institution. They do try to serve you, but their job is highly complicated by the number and variety of requirements. Engineers can help by seeing that orders are sent in clearly. The collection department appears to be doing its best to get every account off our books but this is not so. They are trying to cut down the gap between our payments for materials and the time when we get payment for our products. When they get after you about paying, remember that they have someone on their collar all the time. We must have money to prevent the moulders and other employees from tearing down our plant every pay day. Thus in our office and sales relations we must have mutual forbearance and co-operation. The engineers are 50 per cent. of the show and must co-operate with us as well.

"During the last couple of years prices have had a big effect on our relations. The price situation causes a great difference of opinion. I cannot assure you that there is going to be any great reduction within the near future. Wages to labor constitute the big item in the material right from the mine, and represent such a big production of cost that the price of finished products cannot be reduced without shaking the whole foundry



W. R. GIBSON

General manager Gurney Foundry Co., Ltd., Toronto, who gave a very instructive address on problems of the heating industry before Hamilton Sanitary Engineers' Social Club.

dations of the structure. The altered regulations concerning the Sales Tax are trying the patience of many manufacturers for no one seems to know what is going to be done. It is one of the most muddled situations ever known. We do not want to dodge it, but we do not want to have anything approaching the old luxury tax which was so unpopular.

Public Takes Liberties

"From your standpoint collections are a most important consideration. There is no business in Canada of which the public takes greater liberty in this connection than the sanitary and heating industry. We are one of the last to get to work on a building and if there is any money left we may get it. Most of us are better engineers than collectors and here lies the trouble. You should remember that when you do an honest job you should have no hesitation in asking for your money. The \$100 bill that you circulate quickly pays about \$1,000 in foundry bills, grocery bills, etc.

"We have been placed in a beautiful country but a cold one. Our business is to see that the homes of this country are properly heated. Your business is to see that the proper system is used and properly installed. This brings us close together. There are no two branches of any Canadian business that should be working more in harmony. As manufacturers and engineers our problems have always been largely mechanical as far as our appreciation of them is concerned. The result is that both of us handle every problem from a mechanical point of view. We must change this and do all we can to get on to the other foot, viz., the commercial or merchandising end of the business. We can furnish various merchandising helps and are anxious to do all we can to get away from this top-heavy mechanical point of view. This is where the manufacturer and installer fall down, as far as the user is concerned.

Seasonal Business

"If you will study the situation you will see that our harvest comes seasonably, and this is hard to overcome. The only reason we are supplying heating equipment is because the customer must have something to keep him warm. If it depended upon mechanical knowledge alone we would sell only about 25 per cent. of the present installations. We are not sufficiently sold on the sales idea. Within a few blocks of this building there are 1,000 people who will have a new auto or radio set long before they will have a new boiler. That is because the fellow selling those lines is of a commercial turn of mind rather than mechanical. We must struggle with this problem because it is the biggest one before us.

"As manufacturers, our biggest specific problem is consistent operation of our plant. To have this we need a very steady flow of orders and a consistent

WHEN CANADA STOLE A MARCH ON THE U.S.

A true story which is told with pride by W. R. Gibson, general manager of Gurney Foundry Co., Toronto, is to the effect that the old E. & C. Gurney Co., founded in Hamilton in 1843, was the first to introduce into the United States a round hot water boiler. He also claims his is one of the few Canadian concerns that have gone across into the U.S. market and established a plant and sales force operating just as strongly as the head office in Canada.

sales policy. We get business in proportion to the energy we put into the selling. There is too much seasonal activity. I will give you one of Mr. Gurney's thoughts on this subject. He said, 'I wonder who, in the selling end of the business is following up the furnace men of cities like Toronto and Montreal. The men who look after furnaces have the best knowledge of the condition of the equipment they are tending and know where new furnaces or parts are needed!' That is only one channel," continued Mr. Gibson. "Some business comes easy because people must have heating equipment, but that business could be much enlarged by selling effort. If we develop our sales and merchandising instincts we will soon find that people will be presented with propositions for improving the heating of their homes just as they are now presented with propositions to buy sewing machines, phonographs, etc."

In conclusion Mr. Gibson briefly reviewed the history of the company since the days when the old E. & C. Gurney Co. was born in Hamilton in 1843, being one of the first in Canada to manufacture and market boilers and radiators.

HAMILTON S. E. S. DINNER SCHEDULE

The Sanitary Engineers' Social Club of Hamilton, the account of whose meeting will be found in this issue, have arranged an interesting program of dinner meetings for the coming months, to which they are extending a cordial invitation to anyone connected with the plumbing industry. The dates of the dinners, which are held in the Arcade Dining Hall from 6.15 to 8 p.m., are as follows:—

December 5,
December 19,
January 16,
February 13,
March 12,
March 26,
April 9,
April 23.

Contracts Awarded

Toronto—G. A. Chrisholm, 44 Lakeside Ave., has the plumbing contract and B. J. Iler, 550 Bathurst St., the heating contract for five residences and garages, \$12,000 each, at 31-33 Austin Terrace. A. Clark & Son, owners and builders.

Toronto—H. Ruddick, 54 Appleton, has the plumbing contract and J. G. Jackson, 311 Kennedy Ave., the heating contract on \$21,000 duplex residence on Northcliffe Blvd., Harry J. Long, 76 Glendonwyne Ave., owner and builder. They also have the contracts on \$10,000 duplex being built by Mr. Long on Snowden Ave., and a \$12,000 residence on Regal Ave.

Toronto—George Copperwaite, 118 Langford Ave., has the contract for heating and plumbing for two residences, \$10,000 each, at 74-76 Dawlish Ave.

Brampton, Ont.—Higgins & Large have the plumbing and heating contracts for \$45,000 Sunday School being built for Grace Church congregation.

Cornwall, Ont.—Arthur Rabineau has the roofing and plumbing contracts on \$65,000 school being built here.

Kingston, Ont.—Simmons Bros. have the plumbing and heating contract on \$103,000 addition to dormitory for the Royal Military College.

Montreal — L. E. Moulton & Co., have the plumbing and heating contracts for \$25,000 repairs to residence at 443 University St. for parish of Christ Church.

Ottawa.—W. G. Edge Co., have the plumbing and heating contracts on \$18,202 addition to chemical laboratory.

Toronto—W. G. Edge Co., Ottawa, have the roofing and A. E. Melhuish, 1174 College St., the plumbing contract in connection with stables being built by the city of Toronto.

Hamilton — Bert Dalen, 241 Glendale Ave., has the contract for sheet metal work in connection with \$35,000 office and apartment building on Main St., E., at Delta.

Toronto—Thomas Maxwell, 1221 College St., has the plumbing and heating contract on two duplex residences, \$30,000, at Parkside Drive and Valley Crescent.

Toronto—J. T. Henry, 9 Louisa Ave., has the plumbing contract on one pair residences, \$6,500 each, on Kenwood Ave., near Louisa.

Verdun, P. Q.—Z. & O. Cadieux, 1256 Wellington St., has the plumbing contract and Reid Cambridge, Green Ave., the heating contract, on \$10,000 cottage being built on Lasalle Road.

Windsor, Ont.—S. Wilson, 189 Goyeau St., has the plumbing and heating contracts on \$4,500 residence being built on Hall Ave.

Windsor, Ont.—A. D. Belair, Dougall Ave., has the plumbing and heating contracts on \$6,500 residence on Hall Ave.

Campbellton, N.B.—A. H. English has the heating and plumbing contracts for \$150,000 hotel being built on Roseberry Ave.

Montreal.—E. Tremblay, 13 Perrault Lane., has the roofing, plumbing and heating contracts on \$60,000 residence, corner Robin and Amherst.

Montreal—The Metal Shingle & Siding Co., Ltd., have the roofing contract and John Colford & Co., the plumbing and heating contracts on \$90,000 factory on St. Catherine St. for Dominion Oilcloth and Linoleum Co.

Campbellton, N.B.—Heating and plumbing contracts are still to be let on the \$150,000 hotel on Roseberry St., owned by Chateau Restigouche, Ltd. J. and D. A. Harquail Co., are the general contractors.

Hamilton—Plumbing and heating contracts are to be let on the market being built at Ottawa and Barton Streets by W. J. Lord, James St. N.

Christmas Tree Cleaned Out Plumber's Stock of Small Plumbing Appliances

The Suggestion of Plumbing Equipment and Small Fixtures as Gifts Can be Made to Result in Added Profits—Holiday Trade is Mostly Cash Business—Prepare the Home for Guests' Comfort

DURING the month of December, in all channels of trade dealing direct with the consumer, there is a heavy increase in sales, due to purchases being made for Christmas gifts. Years ago, this pre-Christmas buying was more limited in its scope, but to-day concentrated effort on the part of the dealers has developed the trend of this buying along innumerable lines, and the enterprising heating and plumbing engineer has not been slow to grasp the opportunity of pushing his goods at this season.

It is a recognized fact that this class of business must be approached from an entirely different angle from any other class of sales, the gift angle being made the pre-eminent one in all advertising, sales talks and displays. If the prospect can be made to feel that the goods being offered are such that they would make suitable gifts, the chances of closing the sale are greatly enhanced.

One of the big opportunities along this line that is open to the proprietor of a plumbing shop, is to be found in the sale of such equipment as those small wares, popularly known as "bathroom jewellery," medicine cabinets, shower attachments, gas heaters, temperature regulators and, in the case of the shop where such lines are carried electrical appliances. These require little service other than the actual making of the sale and cover a popular range of prices.

In displaying these goods in the show window, care must be taken to emphasize the gift angle. Show cards should make the suggestion, while a seasonable atmosphere may be given to the window in a few minutes and at small expense by the use of crepe paper and tinsel.

Christmas Window Trims

And touching on the use of crepe paper, it is well, too, to remember and to put into effect the fact that the Christmas gift idea can be much strengthened by putting up the goods sold in seasonable wrappings. Crepe paper or tissue paper make the most seasonable containers and if fastened with a Christmas sticker or tied with ribbon cord, the appearance certainly adds a lot to the selling possibilities, particularly if two or three wrapped gifts are shown in the window trim.

An effective trim can be made by showing a Christmas tree, at the bottom of which are a number of parcels, partly opened and others still tied up.

Those which have been partly opened dispose a portion of their contents, in each case, some article sold in the shop which the proprietor wishes to suggest to the prospect as a suitable gift purchase.

The addition of address cards or stickers, decorated in a holiday design, may also be used, adding a certain amount of suggestiveness and distinctiveness that will prove a good drawing point. These may be secured at a trifling cost at the nearest stationery shop.

A profitable field open to the plumber in selling equipment as gifts, however, lies in the larger installations, items which would not, perhaps, suggest

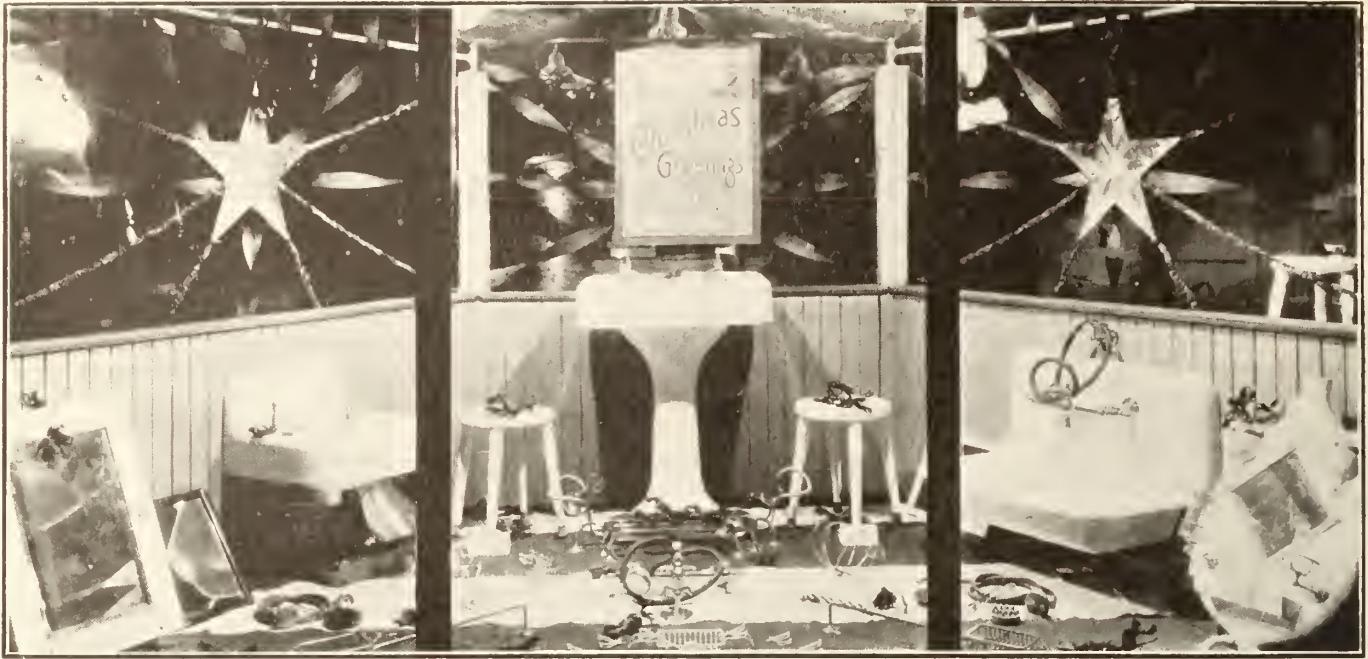
themselves so naturally to the average person as gift possibilities, and it is on these that the plumber would do well to concentrate the greater part of his attention.

Larger Installations Profitable

Washing machines have become a favorite Christmas gift, and it is only a step further to the suggestion of stationary tubs or the entire remodelling of the laundry. The man who is interested in providing his wife with labor-saving and time-economizing devices, will welcome the suggestion that a rearrangement of the laundry or kitchen would save her countless steps and work. Extra bathrooms, private



Here is a Christmas tree decorated lavishly with the usual seasonable decorations and bearing a wide range of plumbing appliances. It is an oddity which will attract much attention in the plumbing show window, and in a year when practical gifts are being given it will help to stimulate sales of these lines.



Always consistent in their efforts to sell plumbing equipment during the Christmas season, the firm of Ecclestone & Bates, Bracebridge, Ont., have had considerable success. With tasty Christmas decorations, a wide range of suitable gift lines are shown in the above display. Many sales are made and a good chance given to talk business to prospects for larger equipment.

lavatories or shower baths for each bedroom can also be sold on the gift suggestion idea.

In fact, during the holiday season, installations of practically every type can be pushed effectively if suggested as Christmas gifts. To the father of a family they mean remarkably fine presents to wife and children. Men who would not be easily interested in additional equipment if approached through the ordinary channels at other times of the year can be appealed to with telling effect by means of this entirely different phase.

The strategy of the thing lies in making the gift suggestion as frequently and as strongly as possible. Actual experience with products which ordinarily were never thought of as gift possibilities has proven that, when the suggestion is made and artfully developed, the desired reaction is secured in the great majority of instances.

People are thinking of what they are going to purchase as gifts, never an easy problem to solve, and any reiterated suggestion is going to leave its impress on the minds. What is better, they have money set aside for the purchase of these gifts and the majority of sales made will be on a strictly cash basis.

Use Christmas Tree

One of the most effective Christmas plans, is to erect a Christmas tree in the show window, and hang on it samples of various pieces of plumbing equipment. This plan was suggested in Sanitary Engineer last year and was used by a number of plumbers to good advantage. One Ottawa sanitary engineer who used it, stated that his stock

of such appliances was absolutely cleared out in the pre-Christmas trade, and he found it necessary to buy a second stock of these lines. The Christmas tree is, of course, decorated with tinsel and other material to give an attractive appearance.

Better Guest Accommodation

Another angle which may be played up successfully at this season of the year, is that of preparing the home for the accommodation of guests. Perhaps at no time of the year is visiting done more extensively than in the latter part of December. At Christmas time, the young folks seek the parental roof for over the holiday and during the week that follows, the social festivities which are then at their height, find numerous guests in homes all over the country.

The householder naturally likes to have his home as attractive and as comfortable as possible for the accommodation of the guests, and the appeal along the lines of added comfort through the installation of an extra bathroom or the private shower for each bedroom, is one which frequently can be used successfully at this season.

Pig Iron Production Shows Slight Decline

THE October output of pig iron in Canada showed a slight decline to 73,593 gross tons, as compared with 75,216 tons produced in September. The average monthly production for the ten months ending October this year was 76,000 tons, and the total production during this period of 758,194 tons showed an increase of 142 per cent. and

50 per cent. over the outputs in the corresponding periods of 1922 and 1921, when the quantities produced were 312,877 tons and 506,730 tons respectively.

The entire output of basic pig iron, amounting to 40,986 tons, was made for the further use of the reporting firms; this was 11 per cent. less than the September production of 45,826 tons. Foundry iron, mostly for sale, remained about the same at 17,377 tons; malleable iron, made for sale, showed an increase of 37 per cent. to a total of 15,235 tons.

The total October production of steel ingots and castings in Canada was 67,496 tons, an increase in all grades amounting to 1,162 tons more than the September output of 66,334 tons. The increase in the basic open hearth steel ingots production was 735 tons, making a total of 62,870 tons for the month. The output of 4,626 tons of steel castings marked an increase of 427 tons distributed by grades as follows: Basic open hearth steel castings rose 145 tons to 2,726 tons; acid open hearth castings increased 117 tons to 653 tons; bessemer castings advanced 100 tons to 413 tons, and electric castings 65 tons to 834 tons.

The average monthly production for the ten months ending October was 79,000 tons, and, while this average was lower than the 1920 average monthly record of 96,000 tons, it was greater than the corresponding figures for 1922 and 1921, when the average monthly outputs were 39,000 tons and 55,000 tons respectively. The total production of ingots this year was 749,270 tons. For the first ten months of the two preceding years the outputs of ingots were 370,836 tons in 1922 and 530,315 tons in 1921.

Credit Bureau Cuts Down Plumbers' Losses Through Bad Debts

Well Planned System of Records of Bad Debtors Protects all Plumbers in Community by Plan of Interchanging Information—Special Forms Used Through a Central Bureau — Number of Canadian Centres Planning a Similar System

Editor's Note:—Sanitary Engineer recently had an enquiry from a Western sanitary engineer for details concerning the establishment of a local credit bureau in the industry. Knowing of the value of such facilities, and in view of the success with which they are being operated in many places of the United States, information has been secured concerning the best practice of such organizations, through the assistance of the National Trade Extension Bureau, as follows:

A CREDIT bureau should be maintained by every association of plumbing dealers or heating contractors. The purpose of this bureau is the protection of the members from loss of money through bad credits. It consists essentially of an exchange of information among members and a compilation of facts concerning a prospective risk from all available sources. In other lines of business, practically every progressive retailers' association now has such a bureau. Thousands of dollars can be saved to members each year by credit reports on file in the association's office.

A credit bureau should be in direct charge of some certain person, usually the secretary or assistant secretary. Every member should furnish the credit bureau with accurate reports of any "slow pay" or "bad pay" customers. Then, it is customary also to exchange information with other credit rating bureaus, and secure from them information on any person for whom no previous work has been done by members.

Give All Details

Reports on a bad risk should give the name, address, amount, and any other information that might be helpful. It need not be necessary for other members of the association to know which member reported any certain person. Each member can be given a number, which is known only to himself and the bureau secretary.

It would be the duty of the person in charge of the credit bureau to file these reports alphabetically for ready reference. After this file is arranged, credit information can be promptly furnished to members of the association.

Some associations operate a collecting agency in connection with the credit bureau to collect bad accounts for their members. A series of collection letters is sent out by the secretary, and when necessary, legal aid is secured. A small

charge is made by the bureau to pay the operating cost of collecting.

1. Every month information blanks are sent to each member of the association by the person in charge of the bureau. Each member goes through his ledgers, and lists on this blank the name and address of each customer whom he considers in any way to be a bad risk. He also fills in the amount owed by the customers, and designates the class by the letters "A" or "B." Class "A" includes accounts not collectable. Class "B" includes those that are more than six months old, slow pay, doubtful or risky. Under "Remarks" he

will give any additional information that may be beneficial. As soon as the blank is filled out it is mailed to the person in charge of the bureau.

2. When the person in charge of the bureau receives the information blank, properly filled out, he transfers each name, together with all the information pertaining to the account, to a card, which is then filed alphabetically in a standard size card file. In addition to this information, the card has a space to insert the number of the member who makes the report. In case more than one member reports the same customer each report will be entered on the same

[illegible][illegible]

Form CB 3

Notification card

Mr. _____ Address _____

Your account with _____

This bureau has been successful because of its fairness to all. It is our policy to ascertain if there is a dispute or grievance existing before proceeding with our methods of collection. If you have a complaint or just reason for withholding payment, please call at our office or write us on the back of this card explaining your grievance in full. This should reach us not later than _____ 192____. If you have no reason for withholding payment please oblige us by remitting \$ _____

T. E. B. Credit Bureau
Room 403 Mercantile Bank Bldg.

Above are three of the forms referred to in the article as used in connection with this credit plan. Information blanks as used by the plumber for recording the information required are illustrated along with the Credit File Card, and the Notification Card.

card, as also will be the number of each member reporting. The information blank is then filed in a private file kept by the person in charge of the bureau.

3. Where possible, arrangements are made with some reliable credit agency to secure reports on prospective customers where the bureau does not have a report in its card file. Such reports would be termed special, and a charge of from fifty cents to one dollar would be made to defray expenses.

4. When a customer, who has been reported to the bureau as an undesirable risk, pays up his account, it will be the duty of the member so reporting such customer to notify the person in charge of the bureau that the account has been paid. Then the person in charge of the bureau will make proper notation on report card, and inform all members of the association that such customer has paid up his account. For this purpose it is essential for such an account to be plainly marked (on the ledger sheet) as reported to the credit bureau. Thus, the necessary report to the credit bureau of payment will not be overlooked.

5. Any member desiring information from the bureau will call over the telephone, giving his own name and number, that the bureau may know that he is a member. He will next give the correct (full) name and address of the prospective customer. The bureau will then refer to the card file, and report that John Doe is reported by one or more members as being slow pay, a bad risk, or such other information as may be at hand.

6. In order that the customer who is reported may have an opportunity to justify himself, the person in charge of the bureau will inform such customer immediately that he has been reported as owing certain members of the association. Form CB-3 is used for this purpose, and must be mailed first class in a sealed envelope.

7. In case the customer claims that an adjustment is necessary on account of overcharge, defective material, or inferior workmanship, the person in charge of the bureau proceeds to make an investigation, and if the claim is justifiable he shall endeavor to make the proper adjustment.

8. Should the person in charge of the bureau be unable to make a satisfactory adjustment, he shall immediately form a board of arbitration. This board shall be composed of three members, two of which shall be master plumbers. One member of this board shall be selected by the customer, one by the bureau, and the third shall be selected by the two members of this board shall be selected of this board shall be final.

9. Should there be no claim presented and no response to Form CB-3 within a reasonable time, then the person in charge of the bureau will send out collection letter No. 1, followed by No. 2 and No. 3 if necessary.

10. In case of failure of the foregoing, the person in charge of the bureau will institute legal action as a final effort to collect the bill.

Collection Letter No. 1 to Follow Card Form CB-3

.....192..

Dear Mr.

This morning while going through our Credit Files, we noted that you had made no reply to our statement of192.., calling your attention to your account with Mr. (Co.).

We want to be fair with you, therefore we again ask you to tell us frankly if there is any reason why this bill should not be paid.

It will be to the interest of all concerned for you to write us immediately or drop into our office, and tell us just how you feel about this matter. You will find our attitude to be not only fair but courteous.

We confidently expect a prompt reply to this letter. Do not disappoint us.

Yours for service,

Collection Letter No. 1 which follows card form CB-3, being the Notification Card as illustrated elsewhere, is reproduced here.

Alberta Government Making Experiment of New Heating Types

WINNIPEG.—An interesting experiment in steam heating is being conducted in this city by the Alberta provincial government in the form of a new domestic heating system, designed with a view to combining the quick results of steam heating with the lasting qualities of hot water. The plant was designed by George R. Pratt, fuel engineer for the province of Alberta, the idea being to obtain better control of temperatures of various parts of the house and to obtain more heat from the steam than is usual when bringing in steam from an outside source.

The plant has been operating for about five weeks and results show every satisfaction, according to those conducting the experiment.

Another experiment run in conjunction with this one is a new type of steam or hot water boiler, designed for quick heat from a small quantity of fuel, such as is desirable in the spring and fall, when it is desired to heat up one or more rooms without heating up the rest of the house, or to provide equal results with the regular heating system to that obtained by electrical heaters.

The boiler installed is for steam and demonstrates that steam can be raised in five minutes from a cold boiler. It

is reasonable to expect that hot water can be raised much more quickly. In conjunction with the boiler is a new type of furnace, by which it is hoped to maintain service with slack coal or coal containing a large portion of slack.

ARENA PROVIDED BIG JOB

In Port Arthur's new civic hockey arena and skating rink, which will be completed in December, nine reinforced arches, 110 feet long, were raised to support the roof. Each arch in addition to several hundred feet of British Columbia fir timbers, contains eight tons of iron rods. Much other steel and iron is used throughout the structure. The arched roof does away with the necessity of using uprights which block the view of spectators over the ice sheet.

WILL EXTEND ASSOCIATION'S SCOPE

Montreal.—Plans have been outlined by the Merchants' Association of Montreal whereby that body will organize a retail credit bureau, wherein credit information would be given on individuals looking for credit in Montreal. At the first meeting of the newly-elected board of directors, Adelard Fortier was chosen as president for a second term. H. J. Elliott, K.C., was elected first vice-president; J. C. Copping, second vice-president; E. W. Sayer and J. O. Boucier as additional members of the executive committee of five.

Heating and Ventilating Department

Principles of Heating and Ventilation of Factories

Determination of Heat Losses—Air Leakage—
Steam and Hot Water Heating—Removal of Air
in Steam Systems

By H. H. ANGUS, Consulting Engineer

IN ORDER to get a correct view of this subject, it is advisable to start at the heat losses from buildings and then describe the method of taking care of these and later the ventilation requirements for various buildings.

The first item to consider is the heat losses. These losses depend on the size, shape and location of the building, also its use and construction. The old rule-of-thumb methods are not sufficiently reliable for use on buildings of any size and may only be used as checks. We must first decide the temperature to be maintained inside the building, which for general factory work, is usually about 60 deg., but this depends on the nature of the work. Such work as type-setting requires a temperature of 70 deg., which is also the case in factories where the work is very light and the operators are seated at benches, such as in jewellery manufacturing. In one factory different processes often require different temperatures.

The outside temperature and the velocity and direction of the prevailing winds may be secured from the observatory records. While the heating system must be sufficient to care for the coldest weather, it is not advisable to use the minimum temperature in making calculations. The low temperatures do not usually last more than a day or so and it requires two or three days for the average factory building to get cooled down inside. If the minimum average for three days is used, it will be found that the heating system is sufficient. For example, in Toronto we have had temperatures as low as 26 deg. Fahr. below zero, but this low temperature does not last usually more than a day. The average low temperature for a period of three days is not usually much below zero, so that in this vicinity a heating system is usually designed for an outside temperature of zero or 5 deg. below. This is usually ample if the building is kept warm all the time.

Knowing now the inside and outside temperatures, we can get the difference between them. In Toronto and vicinity this would be probably 60 deg. Fahr. for shop sections and 70 deg. Fahr. for office sections. It is interesting to note that this changes within a comparatively short distance from the city.

The losses of heat in B.t.u. per square foot per degree difference for various materials used in construction has been gone into fairly well by a number of authorities who have made actual tests on sample walls, roof, etc. There is some considerable difference in the factors for the same construction due to a great extent to the fact that no sample walls are built in exactly the same way. New tests are constantly being made, however, so that agreement on certain constants will, no doubt, soon be reached. Tests made cover a great variety of construction of walls, roofs, windows, etc.

Having now the difference in temperatures inside and outside, and the heat losses per square foot, we are able to figure out the heat losses for the building, except that due to air infiltration. For example, the constant for single glass windows with good sash is 1, and if we have a factory in Toronto with 1,000 square feet of exposed glass, the loss through the glass will be 60 x constant 1 x area 1,000 or 60,000 B.t.u. per hour. In a similar way the losses through roof, floors, walls, etc., are calculated and we get the total loss from the building except that due to air leakage. The losses should be multiplied by a factor dependent on exposure. For north walls, for instance, it is usual to add 25 per cent. and less for other exposures, but these factors depend to a great extent on the location of the building in relation to others.

Air Leakage

Now to get at the loss due to air leakage, we have several factors to consider. If the building covers a considerable area and is good construction, it is sufficient to allow for a half of one complete air change per hour. This means

that one half of the air contents of the building must be replaced by heated air every half hour. This air change varies from $\frac{1}{2}$ to 1, and sometimes more than that for narrow buildings with great exposure. This change, of course, depends on the wind velocity as well as other factors, but it is unusual in most places to have a strong wind during extreme cold weather. Another method used to figure air losses is to assume that all air comes in through cracks around the windows. Knowing the construction of the windows and building, we assume various widths of cracks around the windows and by multiplying these by the perimeter of the windows and the velocity of the air, we arrive at an air change. As both methods depend to a great extent on experience and judgment, there is little to choose between them. The losses due to the air change are the only losses which cannot be calculated accurately, although experiments are now under way to determine these by experimenting with rooms of different construction. Having decided the air leakage per hour and knowing the specific heat of air, we can easily calculate the heat loss due to air infiltration.

By totaling all losses, we now know the total loss of heat from the building which must be replaced by the heating system. It is probable that as the cost of coal advances, more attention will be given to the best construction for heat insulation.

We now have the heat losses from the building and the question is how to replace them. If the factory has a large number of motors, or other sources of power, we can take the heat developed from these from our heat losses, as the power turns to heat energy. We have also the heat given off by human beings. This amounts to about 400 B.t.u. per hour per person, and the effect is very noticeable in such buildings as theatres, which require no heat after the audience arrives. These sources of heat are usually negligible for factories, although in textile factories they are well worth figuring. There may be other sources of heat, depending on the work being carried on. Unless the process is continuous, however, these sources of heat should not reduce the size of the heating apparatus, as the average factory is closed from noon Saturday till Monday morning. They will, however, reduce the demand on the heating apparatus during working hours and reduce the coal required per year.

Methods of Heating

It would be possible to provide the necessary heat by means of stoves lo-

(Continued on page 28)

Gravity hot water and gravity air systems are limited to smaller factories. For medium and large factories we have: 1. The blower system; 2. steam heating; 3. forced hot water. Each has certain advantages and disadvantages which are discussed in this article.

Questions and Answers Regarding Plumbing and Heating Practice

How Can a Range Boiler be Installed Horizontally in Ceiling of Basement?

Editor, Sanitary Engineer:

Will you please have your technical editor explain to me the best way to instal a 30-gallon range boiler at the ceiling of the basement in a horizontal way, as the cellar is small and low, particularly so where I would like to instal it, near the pipeless furnace. I also wish to instal a coil of $\frac{3}{4}$ -inch pipe for the purpose of heating my office. How would I connect this up to a 30-gallon boiler so as to procure hot water at the faucets in the regular way? I also thought of placing the boiler under the office so as to have the floor warmed. Please advise if it would be better to put the range boiler near to the furnace. I am sending sketch of the way the cellar is arranged. —A. O. S., NICOLET, P. Q.

Answer:—In reply to above questions we have not reproduced the cellar plan, but the accompanying sketch will give the desired information. There are several details to bear in mind. First, that no range boiler can under all conditions

give satisfactory service unless the boiler is specially lapped, and, as the sketch sent in by our inquirer leads us to believe that he purposes using a regular range boiler, we have arranged the connections of piping in the best manner possible.

Next, all the horizontal pipes must be installed with a pitch toward the boiler and to the coil, and we would like to suggest that one-inch pipe be used for the heating coil. It will be well to use a one-inch nipple and bull head tee at the lower portion of the boiler, this tee to be connected just as shown, so that there is no interference with steady and unrestricted circulation. As a matter of fact, one-inch pipe throughout between the furnace and the range boiler would be better, then simply take $\frac{3}{4}$ -inch pipe from one end of the tee referred to and use $\frac{3}{4}$ pipe to the coil or radiation.

Between the boiler and the coil $\frac{3}{4}$ inch would be quite in order on the flow

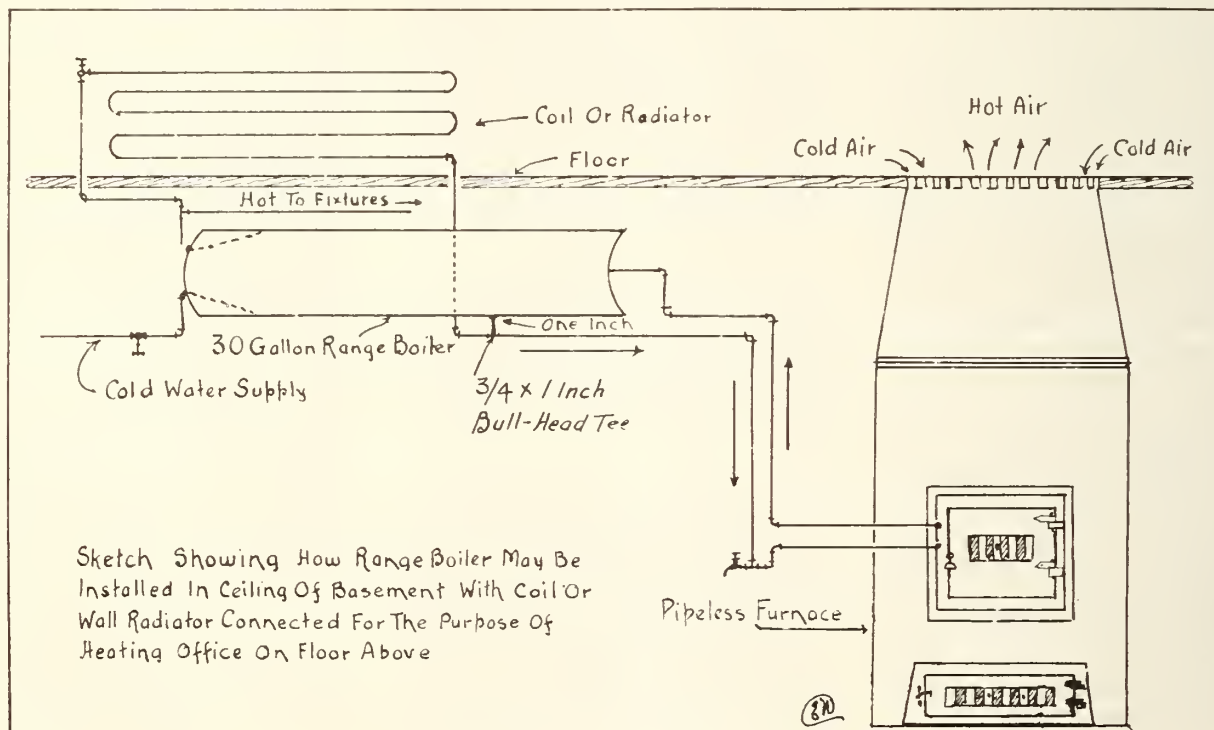
and hot water supply pipes to the plumbing fixtures.

The cold water supply pipe will be O. K. if $\frac{1}{2}$ inch size is used. At the same time, the piece of bent pipe on the hot water should by all means be $\frac{3}{4}$ inch. Cold water, $\frac{1}{2}$ in. will be quite in order.

The reason why a trap is shown on the lower pipe at the furnace is so that any sediment, which is very likely to collect, can be easily drawn off and thereby prevent the possibility of the coil in the furnace getting choked up. It is advisable to use the faucet quite frequently so as to keep this pipe clean, and ensure greater satisfaction, due to clearer circulation. — TECHNICAL EDITOR.

Can Flush Valves Be Fitted to Pneumatic Water Systems?

Editor Sanitary Engineer.—I am paying more interest to the installing of farm water supply systems and rural sanitation and have been asked if the regular flush valves can be fitted up to a farm water supply system. One of my prospective customers has heard of



several water closet tanks leaking, and has seen these flush valves in operation in some of the hotels.

If these valves can be used, will you please give some information about them, and how they should be connected to a pressure system such as referred to?

—F. W. H. O.

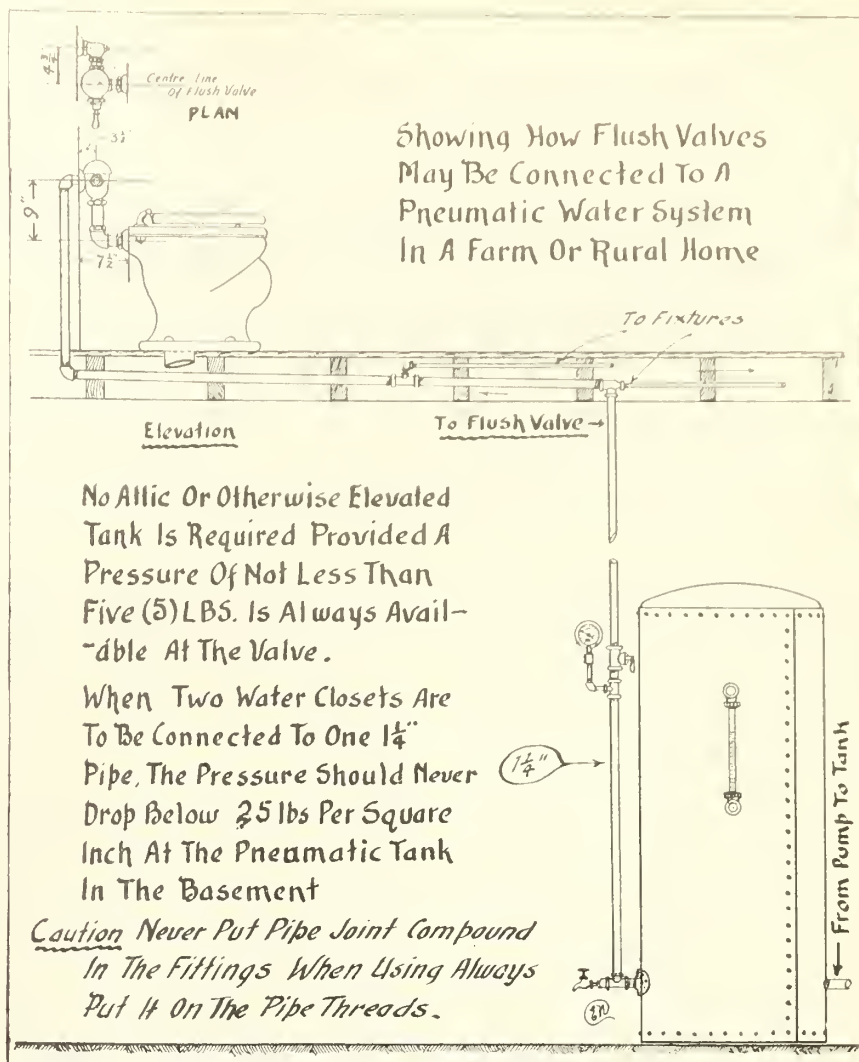
Answer.—It is encouraging to learn that still another reader of Sanitary Engineer is going to devote more time to installing plumbing in farm homes. The question of connecting flush valves direct to a pneumatic system is perfectly O.K. The pressure system is doing the same work as a regular city water works will do, and should be fitted up in the very same manner. There is one point which must always be given consideration, viz.—that the outlet from the pneumatic tank must be enlarged or rather the tapping must be ordered when the pressure tank is going to be used for such a purpose. Ordinarily these tanks are not tapped much larger than $\frac{3}{4}$ inch, and for flush valves a one and one quarter inch tapping at the outlet would be necessary.

When such a size is connected into the tank, almost any number of smaller branches may be taken off to be used to furnish water for the other fixtures of the house or other buildings.

The writer knows of a public school where W. C. tanks were installed chiefly on a basis of cheapness, but the plumber declared that flush valves could not be used, which proved that he evidently had not kept himself posted as to what was going on.

The accompanying illustration gives our readers an idea how flush valves may be used on pressure jobs out in the country.

TECHNICAL EDITOR



This sketch illustrates how flush valves may be used in pressure jobs out in the country, as referred to in accompanying article.

Travellers Should Avoid Wasting Merchants' Time

WORTHY of the attention of all manufacturers and wholesalers who have travellers calling upon retail merchants is the following extract from a letter received from a Western Ontario merchant:—

"Is there any easy way in which the following matter could be placed before the wholesalers and manufacturers? We have been in business for forty years and every business day throughout that length of period we have been interviewed by one or several travellers representing the many firms. We are always glad to see them, and make it a special point to be courteous, but as brief as possible. We find, as a general rule, that the average traveller is not sufficiently clear cut and sharp in the introduction of his goods, but desires to talk about a lot of other matters be-

fore coming to the real issue. The days of offering the buyer a cigar, drink or chromo are dead, and we feel that the days of the traveller desiring to tell a story or discuss the weather, with a lot of other trifles, are also dead. Merchants are busy men, or should be, and we feel that the traveller's conversation should commence about as follows: 'Good morning, Mr. Smith. My name is Jones, representing John Wilson & Co.' The average merchant has so many travellers calling upon him that he becomes confused as to what firm these travellers represent, and particularly so when occasionally such travellers change their positions.

"Please let this point be firmly established that the merchant needs the traveller and should be courteous, and the traveller should be brief."

AMALGAMATE BUSINESS MEN'S ASSOCIATIONS

Toronto.—Plans now under way, when completed, will give the Bloor Business Men's Association the honor of being the largest association of its kind in the city. These plans include the amalgamation of the Bloor-Bathurst Business Men's Association, the Bloor-Dovercourt Business Men's Association, and the Bloor-Lansdowne Business Men's Association, into one body with an initial membership of over seven hundred.

BRITISH STEEL TRADE MAINTAINING ITS AVERAGE

October iron and steel exports from Great Britain, 388,599 long tons, were the largest thus far recorded in 1923, with the exception of May. Imports, 106,262 tons, approximated the figures for the second quarter, but were lower than the monthly average for the first nine months.

Tinsmithing and Sheet Metal Work

Sheet Metal Men Should Work Out Patterns of Cornice and Skylight Examples Found on Schools and Hotels

Sketches and Designs Made in This Way are Good Practice, as They Hasten Experience and Produce Creative Energy

Written for Sanitary Engineer by O. W. KOTHE, Principal, St. Louis Technical Institute.

IN ARCHITECTURAL cornice work and the making of gables and pediments, the panel thus formed is often enriched by various designs of ornament. Some of these are made one way and some another, and in this case we shall show that an irregularly curved design is difficult to develop. The purpose of these ornaments is to fill the blank panel space so that in each half of the panel there may be four or six of these designs, each one being of a different length and curvature. This requires each element to be treated separately, and judging for both halves there would be two ornaments made of each pattern. Workmen who are skilled in raising zinc or copper could, no doubt, make this crease with little difficulty, while others would have trouble, but where the ornament is to be made of galvanized iron, it really must be developed in triangulation.

The first step is to describe the centre post and then in their proper position sketch in each ornament. This is a matter of trial, as each element must be put in by "feeling" rather than by stiff formal description. This is not an easy matter and may require considerable rubber for erasing before graceful curvatures are determined upon. When the outlines are established, the centre line is filled in to harmonize with the design. Some workmen may prefer to sketch in the centre line first and then to work the outline around the centre line, which practice is all right as long as the proper result is produced and a proper division of space is made between the various elements of the ornament. Another feature of this ornament is that the rise in the centre line varies, it being a quarter inch high at the centre post and gradually raises to three-quarters and then works down to zero at the point. This requires a special girth developed along the centre line.

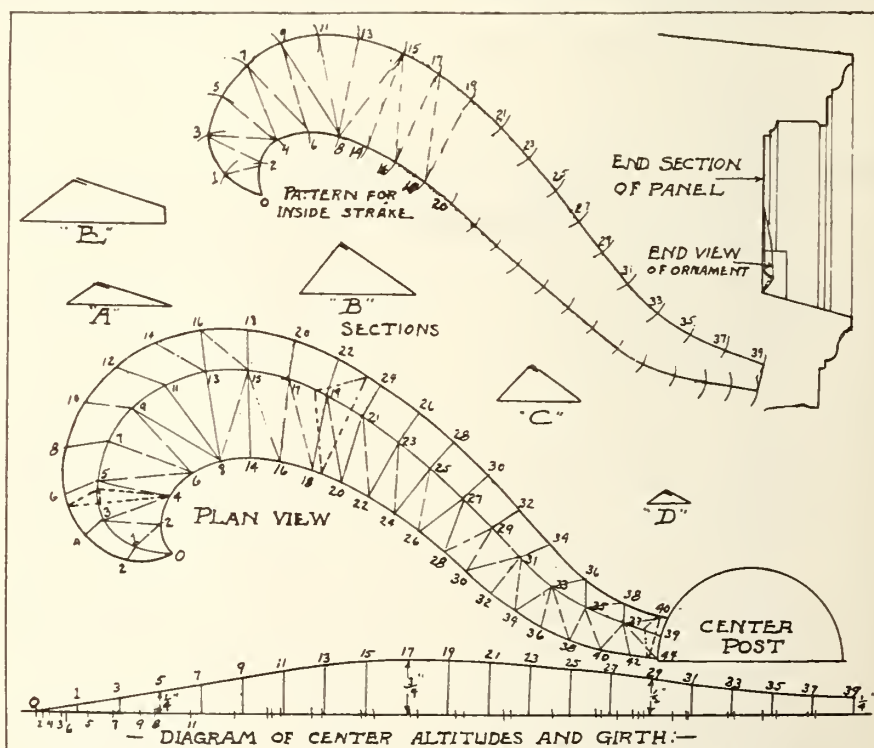
So, we first divide all three lines into the same number of equal parts, or at least to such a disposition that will make convenient development and overcome

confusion of lines as well as not take too long in development. After this, lines are drawn from one point to another, as shown. The heavy dotted positions in the plain view represent the section showing the variation in the rise of the centre line from which the diagram is constructed.

We pick each space of the centre line as 0-1-3-5-7, etc., to 39 and transfer them on a straight line, as in the lower diagram. Then from each point we erect lines, as at 5, 17, 29 and 39, and measure the specified altitude, as shown. At their points we sketch in the top curve making it as uniform as possible, which will be the top centre line straightened out. After this, we erect all the other lines from the base line to this curve and that gives us the height or

altitudes for the triangles under development. In this case we only develop the lower or inside strake of ornament, so we pick the triangular lines from plan, as 1-2, and set it from the base line over as shown, then 1-2 will be the true length. In the same way we pick lines 2-3 and use point 3 in base line and mark the line 3, then 3-3 will be the true length. In this way the vertical lines in our diagram will always be the altitudinal line corresponding to the centre line of our plan, and we set off these triangular plan lines on each side and develop the pattern simultaneously so as to avoid marking points in lines. In this way we start from the point 0 and use 0-1 from diagram as girth, and also 0-2 from plan as girth. Then with true lengths 1-2 from diagram and 0 as centre cross arcs in point 1. This gives us the start for triangulating the rest of the strake. The girth spaces for the lower side are all taken from plan in numerical order, while those from the upper side of strake are taken from the diagram.

The outer strake for pattern would be developed in the same way, but using the girth from the outline of plan as 0-2-4-6-8, etc., while using the girth as 0-1-3-5-7, etc., from diagram for the centre line. In this way the girth alone, the centre line of both inside and outside strakes, will be of equal length.



Working Drawing Shows How Pattern for Gable and Pediment Ornaments to Fill Blank Spaces Are Made.

Ordinarily a small lap would be allowed on one of the strakes similar as "A," "B," "C," "D" show. If time to be put in on them permits, the ornaments could be made as "E," although we believe by the time the workman has laid them off he can feel that sufficient work had been put in on them.

Some architects are rather particular about having the things they design worked out accurately and in such cases their whims must be catered to, other-

wise in the future such architects will specify substitute material on the grounds that the sheet metal man says it is impracticable to make the fine designs the architect specifies.

One of the troubles with sheet metal cornice work is to make absolutely perfect mouldings by the hand cornice work. That is also why some architects say that sheet metal work cannot be shaped as they want it, and, therefore, they specify something else.

Necessity Often Requires a Connection Where a Tee Will Intersect an End Pipe Off Center

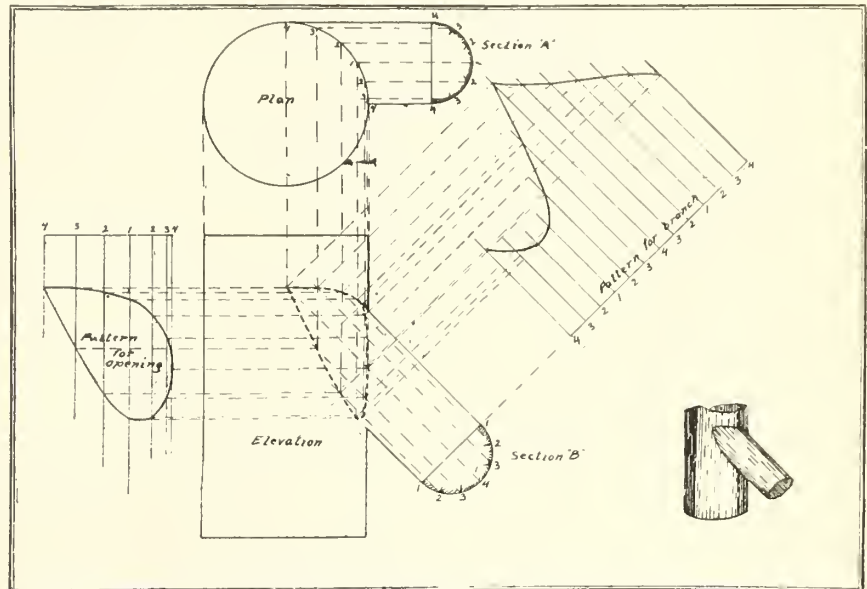
The Connection May Be on the Top or Bottom Tangent, and the Pattern Shows How this Can Be Done

NOW and then it is necessary by the run of pipes to make a connection where a tee will intersect an end pipe either on the bottom or on the top tangent. In that case the method here shown can be followed. At first we draw the plan describing the main pipe to suit the required diameter and then set the branch pipe on this main pipe wherever measurements require. Then describe the half section "A" and divide in any number of equal parts. From here extend lines into the main pipe, thereby intersecting, as at points 4-3-2-1, etc. Now, from these points we drop lines and set up a side elevation. The angle of tee in the side elevation is generally made 45 deg. or can be made anything desired or required. Reproduce section "A" with all its points, as section "B," and from each of these points extend lines into the main pipe until they intersect lines of similar number dropped from plan.

Pick out these intersections and sketch the miter line as shown, which is the points of penetration between the tee and the main pipe. Now to set off the pattern for the branch, extend the line 1-1, as 4-4 in the pattern, and on this set off twice the number of spaces you have in the half section "B." Draw stretchout lines from each of these points so they are parallel with the tee branch and then from each point in the miter line of elevation project lines into the stretchout. Pick out the intersections of corresponding lines and sketch a line through these points, and you have the miter line.

When the opening is desired, observe that the branch pipe sets over the main pipe a distance of 4-1-4 of plan, so that these spaces are picked separately and set as 4-4 in the pattern to the left of the elevation. Then drop stretchout lines, and from each point in miter line of elevation bring over horizontal lines to intersect the stretchout lines of similar number. Through these intersections sketch the outline for opening, and

the pattern is finished. Observe that the plan gives the width or girth, while the elevation gives length of cut. So,



Pattern Shows How to Make a Connection Where Tee Will Intersect an End Pipe Either on Bottom or on Top Tangent.

by working these two together in this way, we make the pattern. Add edges for assembling on all patterns.

Investigation Into Central Heating Will Cover Much Territory

OTTAWA.—Consistent with its recently adopted policy of doing everything possible toward the securing of a permanent solution of the fuel problem, the Dominion Government, as announced in the Nov. 15 issue of Sanitary Engineer, has engaged F. A. Combe, prominent Montreal heating and combustion engineer, to make an exhaustive survey and report on the feasibility of establishing central heating plants in Canada.

Contracts Awarded

Hamilton—Wm. Newell has the plumbing contract and Charles Havers the heating contract for three residences being built on Tuxedo Ave., by Witt, Bull & Oxford.

Hamilton—McMillan & Ford have the plumbing contract and M. Williamson, Cluny Ave., the heating contract on two residences, \$4,000 each, on Cluny Ave., by S. Washington.

Kitchener, Ont.—Battler & Freiburger have the plumbing and heating contracts for \$5,000 residence, being erected on Locust St., by H. Allen.

Montreal.—J. E. Mayer has the roofing contract and A. Blais the plumbing and heating contracts on two residences, \$15,000 each, being built on Cote St. Antoine, near Wilson.

Ottawa—Gervin & Hodgins have the plumbing contract and Pease Foundry Co., the heating contract on \$7,000 residence being built on Somerset St. Gervin and Hodgins also have the plumbing on a \$6,000 residence on Ossington Ave., on which the Capital Hardware Co. has the heating.

Birchcliffe, Ont.—The Toronto Furnace Co., 35 Golden Ave., has the heating contract for two residences being built at 180 King Edward Ave., \$4,500 each, by A. Flatman.

Mr. Combe's investigation will be conducted under the supervision of the Dominion Fuel Board and must be completed within six months. He will not only deal with the history of central heating, but will also pay particular attention to the saving that can be effected by using low grade fuels in central station heating plants. Other phases of the subject to be dealt with will be reasons for the failure in unsuccessful central heating enterprises, the possibility of combining electric generating and heating service, using plants for making ice in summer, diagrams and plans of plants, rates, regulations, approximate costs, capital required and probable profits.

Mr. Combe is chairman of the fuel committee of the Engineering Institute of Canada. He has for years specialized in central heating work.

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Moral Codes in Business

SOME very high ideals were prescribed for the business of a certain branch of wholesale trade at a recent convention in Toronto. The members were urged as a body to help "purge the trade of the immoral business crook, the cowardly secret rebater and the dishonest price cutter, if we cannot make them honest." The president urged that the wholesaler should give a declaration to the manufacturer that he has not sold products at lower prices or on better terms and conditions than provided for, and also that employes of wholesalers should also give a declaration. This policy would, it was thought, put an end to dishonest practices. It was the feeling that with the manufacturers' contract selling plan firmly established there would be no extensive secret price cutting, the public would be more honestly dealt with and the standard of business morals would be greatly improved. The statement was made that the Dominion government itself favored fixed prices and their honest observance.

There is a good deal to be said on each side of a number of these points, all not being agreed that the fixing of prices and establishment of contract selling plans will do much to increase business honesty. It is a fact that the more rules and regulations that are established, the more such rules will be broken. Anything approaching agreements must be dealt with the one idea of most economical distribution, best service to the trade and lowest prices to the consumer consistent with fair profits. There is need for the development of better business morals in connection with some branches of trade, even in the plumbing business, but as a general rule definite dishonesty is short lived and the type of ignorance which begets destructive competition is usually short lived. Hence any such irregularities generally solve themselves in short order. If they can be eliminated almost entirely by the establishment of a higher moral code, then let us have it quick.

More Show Windows

THE outstanding success which has attended the Royal Winter Fair, just concluding its second annual renewal in Toronto, is a further indication of the increasing importance of such exhibitions and a complete vindication of the principles of advertising and of actually showing the goods, principles which are the fundamentals of retail business.

In opening the Fair, Premier Ferguson, of Ontario, stated: "Canada is rapidly learning to employ these two out-

standing factors in her development—Education and Advertising. These are being recognized to-day as never before and utilized in the onward march of progress. The exhibition employs both in the fullest measure. We cannot have too many show windows. Such Fairs constitute one of the most valuable and useful institutions which exist in Canada to-day."

Progressive retailers have learned the value of their show windows, and any who have not placed on them their rightful value have only to recognize that millions of dollars are being spent on exhibitions of various kinds merely to dress a show window which will influence people along certain lines. The retailer has show windows which in a year's time can be utilized to influence many thousands of people.

Mail-order houses and numerous other forms of competition for the retailer have none of these great advantages and care should be taken to see that they are put to the best possible use.

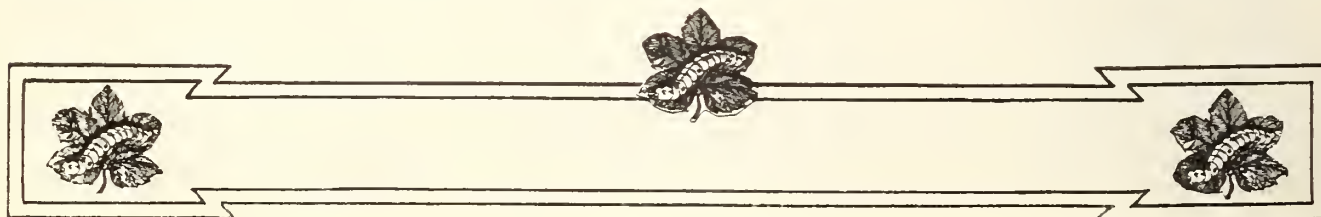
Don't Know Where They're At

IT IS unfortunate that plumbing and heating operators and tinsmiths are not able, at this late date, to get definite instructions as to their responsibility under the new sales tax regulations becoming effective on Jan. 1 next. Elsewhere in this issue appears information secured by Sanitary Engineer from officials of the tax department which shows that plumbers or tinsmiths doing over \$10,000 business in the last fiscal year, representing materials assembled or produced, will be licensed and will collect sales tax on sales and make returns to the government. This will be a new role for most plumbers, though some tinsmiths have been tax collectors for the government under the present regulations.

Plumbers in this category will, therefore, be known as licensed manufacturers, and it is likely that sales of bathroom appliances and other goods which are sold in the same form as when purchased will be classed as retail sales and not influence the \$10,000 sum which establishes the status of the plumber for taxation. It is apparent that the wholesaler or manufacturer selling to the plumbing trade will require two sets of prices, because there will be both licensed and unlicensed plumbers, the former in buying at prices not inclusive of sales tax and the latter buying at prices including tax.

Manufacturers and licensed wholesalers will apparently have less work under the new regulations, for on all sales to licensed plumbers, no tax will be applied by them. One would imagine that this change of policy in collecting tax would greatly increase the number of firms from which the government will be collecting tax, but, though many trades are licensed for the first time, there is a reduction in the number of firms which will collect sales tax. This is due chiefly to the elimination of many wholesalers.

There is already talk of increased prices on plumbing and heating supplies, due to the increased sales tax, but there would seem to be little justification for increases beyond these, due to the fact that in future the tax must in most cases be included in the price and not shown as a separate charge. In some trades, the sales tax has been held responsible for large increases in prices already in effect, and such action has been resented by the trade, for it proves a big handicap to business under present conditions.



Novel Scheme of Apprenticeship

APPRENTICESHIP is one of the big problems of the industry in Canada which is receiving much attention at present. In this connection the plan to be followed by a new school being formed in Buffalo is interesting, containing as it does some ideas which might be used in Canada to advantage.

According to the plan, an advisory committee will be constituted of representatives from the journeymen's organizations and representatives from the Department of Education. This advisory committee will offer suggestions on the content of a course of study for the plumbing school. It will set certain standards of work to which every boy must comply before he can receive the diploma of the school in the two-year day trade course in plumbing. The advisory committee will aid in the development of the program through the discussion of questions and problems as they arise. Through frequent visitations of the school, the committee will keep in touch with the work that is being done.

The advisory committee recommended an instructor who was recognized by the Master Plumbers' Association as an excellent mechanic, and was therefore chosen by the Board of Education.

Members of the Master Plumbers' Association have been requested to agree to employ boys who are graduated from the school, allowing each graduate credit of one year on his apprenticeship time for the two years which he spent in school. The master plumbers have been asked to agree to give employment to every apprentice for at least ten months of every year, and to establish a scale of wages for apprenticeship based on a percentage proportion of the journeymen's wage in the city.

The master plumbers have been asked to appoint an apprenticeship committee to assist in the establishment of a course of study, to work in setting up a definite standard of work for the attainment of each boy before graduation, and to work out the details of his indenture or apprenticeship agreement protective to both employer and apprentice.

In order to enter the vocational school for plumbers, the boy must be an eighth grade graduate and hence is at least sixteen years of age when he completes his two-year trade course.

Every boy who is employed following graduation from a vocational school must attend evening school during his apprenticeship. This is with the co-operation of the employer and the union, and keeps the boy under the influence of the school as long as possible and gives him practical training in advanced trade practices.

Time and Labor Control Your Costs

Minute Message No. 40

Written for Sanitary Engineer by FRANK STOCKDALE

Buying Series



THE first essential to good buying is a knowledge of the things that increase the cost of carrying and selling the goods.

Two questions the buyer should ask about every article he buys are these:—

1. Are the goods hard to sell?
2. Will they stay long in the store?

The harder goods are to sell, the more the labor cost, and the longer they stay in the store, the higher the carrying cost.

Every item bought must bear a margin in proportion to these costs. It is not enough to select goods of good quality, at fair price. The cost to sell and the cost to carry must be given careful consideration. Not only this, but the wise buyer considers these two things separately.

It is easy to make mistakes by assuming that easy sellers are quick movers, or that quick movers are easy sellers. Sometimes they are not, and a few mistakes may consume all the profits made on other items.

Watch "Father Time" and "Labor." They control your cost of doing business on each line and item.

THINK IT OVER—APPLY IT TO YOUR BUSINESS

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News Notes From Coast to Coast

Doings in the Plumbing and Heating Industry

NEED NEW VENTILATING SYSTEM

St. Thomas, Ont.—It was pointed out at a recent meeting of the Board of Education that a new ventilating system will have to be installed at the Myrtle Street School before the heating system will work satisfactorily.

RETURNS FROM CONVENTION

Hamilton, Ont.—City Engineer McFaul has returned from the convention of the American Society for Municipal Improvements, held at Atlanta, Georgia, where two of the big topics taken up were sewage disposal and waterworks extension.

OBITUARY

Montreal.—John Dixon Raitt, aged 80 years, a native of Lachute, and for the past 18 years a resident of Montreal, died at his home here, after a brief illness. Mr. Raitt was for a long time in business at Lachute as a tinsmith, plumber, and roofer, and was a member of the firm of Madden and Raitt.

MAY SECURE TWO COMFORT STATIONS

Vancouver.—Mount Pleasant will be provided with two sanitary conveniences out of funds originally destined to finance the comfort station planned for Georgia St., if suggestions made by aldermen to the civic health committee are adopted, the change arising out of a petition from Mount Pleasant business men.

SASKATOON SANATORIUM CONTRACTS LET

Saskatoon, Sask.—The provincial government has awarded the general contract on the new sanatorium here to Smith Bros. and Wilson, of Regina, this firm's tender being \$181,000 for their share of the work. The plumbing and heating will be done by the Northern Plumbing Co., Saskatoon, who tendered at \$77,767. Eight other plumbing and heating firms tendered, running as much as \$11,000 above the accepted figure.

WILL BAR VENTLESS GAS STOVES

Lethbridge, Alta.—The city council has instructed the city solicitor to prepare a by-law governing the installation of gas stoves, the same to be based upon the Calgary by-law which prohibits the installation of ventless gas stoves. This action was based largely upon a report prepared on this subject by Acting City Engineer Chapman, of Calgary, in which he claimed that the ventless gas stove was scientifically unsound from a ventilation engineer's viewpoint.

NEW MONTREAL REPRESENTATIVE

Montreal.—J. A. Rheame, of this city, has become associated with the Lord & Burnham Co., as their district representative, it being the intention of the company to open a warehouse here for the supplying of Burnham boilers to local customers. Mr. Rheame has had long experience in the boiler and radiator business, having been for the past thirteen years Montreal representative of the Dominion Radiator Co., and for the fourteen years previous associated with H. R. Ives Co., boiler manufacturers.

START CONSTRUCTION AS RELIEF WORK

London, Ont.—City Engineer W. H. Neil has been advised that the Provincial Board of Health has approved plans for the construction of a \$200,000 sanitary sewer to serve the Wellington and High Street district in South London. The work will be done as relief for unemployed, the normal cost being assessable against the properties benefited and the excess, due to winter work will be paid for out of a special relief fund.

AIM TO SUPERVISE OIL HEATING PLANTS

Montreal.—In order to supervise the installation and operation of oil-heating plants, which have become quite numerous within the past few years, the city is considering the adoption of a by-law which will rigidly control the apparatus and fire precautions which must be taken in connection with their use. Oil tanks will have to be placed underground, strict inspection of all equipment will be enforced, and only approved types of tanks, piping, valves, and gauges, will be used.

PREDICTS BIG FUTURE FOR GAS HEATING

Victoria, B. C.—That the future would see community and home heating accomplished by means of gas, instead of hard fuel was the prediction of F. H. Hewlings, speaking before the Kiwanis Club recently. Civilization was approaching a gaseous age, due to the relatively high efficiency of gas for heating purposes, against that of hard fuel, such as coal and wood, he stated. He maintained that furnaces, gas-heated, acted with a greater degree of efficiency and with half the attendant labor.

OBITUARY

Toronto.—David Robb, of the firm of D. Robb & Sons, sheet metal workers, 191 Adelaide St., West, died suddenly at his residence here in his eightieth year. Mr. Robb was an old resident of Toronto, coming here from Kirkaldy, Scotland, 57 years ago.

McCLARYS' WIN OPENING GAME

London, Ont.—In the opening game of the Manufacturers' League, McClarys' basketball team was successful in winning from the McCormick team after a hard fought game.

PRESENTATION TO RETIRING ASSOCIATE

Hamilton.—The office and factory staffs of the Hamilton Stove and Heater Co. bade farewell to Chester Smith, retiring chief clerk of the sales department, by making him the recipient of a sterling silver pencil and fountain pen. Mr. Smith has been connected with the firm for over eleven years in various capacities.

SALESMAN INJURED IN MOTOR ACCIDENT

Toronto.—Lawrence McGaughey, of the sales staff of the Sheet Metal Products Co., met with a serious accident while motoring near Lindsay, Ont., his home town, on Sunday. The car overturned, Mr. McGaughey being pinned underneath, his chest being badly crushed. He was taken to a private hospital at Little Britain, where he is being attended. Examination has revealed that, although much bruised, there was no fracture or broken bones. While Mr. McGaughey is incapacitated, his territory is being taken care of by Carson Teskey.

JAPAN WILL SPEND HALF BILLION DOLLARS

Conditions in Japan are gradually becoming settled. Military law has been discontinued in the devastated region and sufficient houses have been provided to shelter the homeless. The combined adverse trade balances of September and October were by far less than the balance of any one month of 1923, preceding the disaster. It is unofficially estimated that total reconstruction expenditures during the next five years will reach only \$525,000,000. The importation of iron and steel and lumber during October was very heavy. Shipping facilities at Yokohama are being improved rapidly and considerable silk was exported from that port during the month.

British Industries Fair Will be Later in 1924

A NNOUCEMENT has been made by the Department of Overseas Trade of the alteration of date in the holding of the annual British Industries Fair for 1924.

For the past nine years the Fair has been held regularly during the latter half of February, occasionally running on into the first week of March. The next, the tenth Fair, will be held two months later, from April 28 to May 9, and the Birmingham section, instead of being concurrent with or overlapping the London section, as has been the case in previous years, will follow, opening on May 12 and closing on May 23.

The secretary writes as follows: "With the Imperial Conference and its important blood-brother, the Economic Conference, in session, the consideration of the commercial world is concentrated on the question of the expansion of Imperial trade. The present condition of the world's markets is also exerting pressure in the same direction. The political uncertainty and financial confusion of the continent of Europe as a whole is compelling the British manufacturer to give his fullest attention to the requirements and conditions of the Dominions and colonial markets, while the Imperial overseas producer can find few safe outlets in Europe beyond the United Kingdom."

PLANT CLOSED DOWN

St Catharines, Ont.—The Canadian Furnaces closed down their plant for an indefinite period owing to there being little demand for their production of pig iron. Some hundred employees are affected, only a few hands being retained temporarily.

BUILDERS TO MEET IN WINDSOR

Ottawa.—The annual convention of the Canadian Association of the Building and Construction Industry will be held in Windsor, Ont., Jan. 22 to 25, it was announced by Clarke Reilly, Dominion secretary of the association.

MADE LARGE INSTALLATION

The Lakehead Engineering Co. (J. W. Barnes and Frank Lampshire), Port Arthur, this fall installed several new, direct draft-type, tubular heating boilers, manufactured by the Port Arthur Shipbuilding Co. The boiler, according to type, has from twenty-eight to thirty-two tubes, to conform with various radiating surfaces. Two have been placed in the News-Chronicle plant and one in the new temple recently finished for the Independent Order of Oddfellows. The equipment is giving satisfaction and the Lakehead Engineering Co. has several orders pending. Meanwhile, the manufacturers are making arrangements to put the new boiler on the Canadian and United States markets, as many orders are in their hands.

Contracts Awarded

Montreal—Plumbing and heating contracts are to be let by G. H. Robert, 2409 Christophe Colomb, on \$10,000 residence on Villeraie & Berri Streets, of which he is owner and builder.

Montreal—Plumbing work is to be awarded on \$13,000 residence on Blvd. St. Joseph. M. Choquette, 3816 St. Dennis, is the owner.

Toronto—Heating and plumbing contracts are to be let on \$10,000 residence and garage, Dundurn Crescent, C. Tallman, Northcliffe Blvd., owner.

Verdun, P.Q.—Plumbing contract is to be let on \$10,000 residence, Claude St., D. St. Laurent, 1329 Claude St., owner and builder.

Toronto—Plumbing and heating contracts on 6 pair residences, \$7,000, on Orchard View Blvd., Grimshaw Bros., 2033 Yonge St., owners and builders.

Toronto—The plumbing contract is to be let on \$13,000 residence on Second Ave., F. Lusigan, 1491 Wellington St., owner and builder.

Outremont, P.Q.—Plumbing and heating contracts are to be let on three residences, \$14,000, to be built on Outremont, near Van Horne. J. Martineau, 471 Orleans, has the general contract.

Outremont, P. Q.—Roofing, plumbing and heating contracts are to be let on \$15,000 residence, on Querbes, near Lajoie, J. H. Millette, 67 Breboeuf, being the general contractor.

Montreal—Roofing, heating and plumbing contracts are to be let for six flats being built on Wiseman, near Van Horne, at a cost of \$18,000. O. Randeau, 1137 St. Denis St., has the general contract.

Toronto—Plumbing and heating contracts are being let for \$15,000 residence and garage, Indian Grove, near Indian Valley Crescent. Owner, G. S. Sanderson, care W. H. Smith, 291 Indian Road.

Montreal—J. E. Roy, 1426 City Hall Ave., has the plumbing, heating and ventilating contracts on \$60,000 apartment house near 642 McKay St., for M. Maron, 1195 St. Urbain St.

Montreal—J. E. Mayer, 516 Lafontaine Park, has the roofing contract and Tardif & Sarrazin the plumbing and heating contracts on \$9,000 cottage on Dunlop for V. A. Fournier, 2578 Waverley.

St. Catharines, Ont. Bowman Bros. have the plumbing contract on \$4,000 residence at 37 Brock St. for H. N. Dockstader.

Toronto—H. L. Bythell, 897 College St., has the plumbing contract and Robert Steen, 9 Grimthorpe St., the heating contract on \$9,000 residence and garage on Riverside Road.

Toronto—Charles Legg, Barrington Ave., has the plumbing contract and Mason & Allen, 400 Morley Ave., the heating contract on one pair residences, \$8,000, Brookside Drive, near Burgess.

Toronto—H. Cook, 69 Sprucehill Road, has the heating contract and Charles Frampton, 169 Greenwood, the plumbing contract on 3 pair residences, \$6,000 each, on Rhyll, near Haslett Ave.

Sault Ste. Marie, Ont.—J. McLeod has the plumbing contract on \$9,000 store block being built on James St.

Toronto—Feather & Roadhouse, 93 Waverly Road, have the roofing contract and B. J. Miller & Co., the heating contract on \$10,000 garage and office at 365-7 Dupont St.

Toronto—W. J. McGuire Ltd., have the plumbing and heating contracts on \$100,000 manufacturing building east corner Spadina Ave. and Phoebe.

Windsor, Ont.—Welsh Bros., 620 Pitt St. W., have the roofing contract on \$7,000 garage on Church St.

Kitchener, Ont.—H. Klem, 83 King St. E., has the heating and plumbing contracts on \$10,000 residence on Park St., for W. Heberbrandt.

Mount Royal, P.Q.—Edgar Tremblay, 267 Maisonneuve St., has the roofing, plumbing and heating contract on four residences, \$32,000, being built for Model City Housing Co., Montreal.

Montreal—Hickey & Aubut, 93 Dominion St., have the roofing, plumbing and heating contracts in connection with \$15,000 repairs to residence at 595 Pine Ave., for A. Colville. They also have roofing contract on \$20,000 residence on Courte for J. R. Douglas.

Sault Ste. Marie, Ont.—J. McLeod has the plumbing contract and Lockhart Bros. the heating contract for \$9,000 mission for Presbyterian Church.

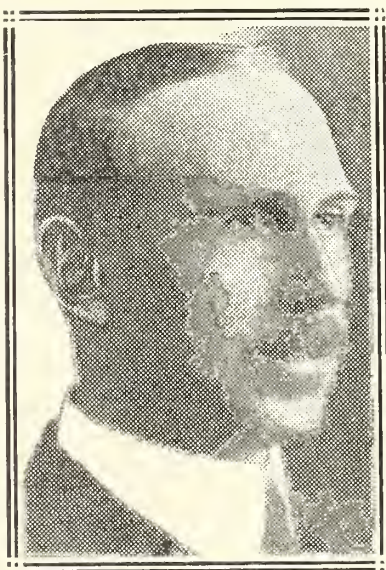
Sarnia, Ont.—Mackenzie, Milne & Co., have the sheet metal contract for the \$18,000 rink for the Sarnia Curling Club.

Sault Ste. Marie, Ont.—George Woolrich has the heating and plumbing contracts for the \$10,000 store block being built on Queen St. for Harry Yates.

Toronto—E. Lankin & Son, Ltd., have the roofing and sheet metal contracts for the \$50,000 ice plant of Chapman's, Ltd.

Vancouver — The Pacific Sheet Metal Works, of Grenville Island, have been awarded the roofing and sheet metal contracts on the \$550,000 apartment block at Georgia and Hornby Sts.

Vancouver — Campbell & Grill, 1238 Seymour St., have the sheet metal contract and Townsley & Son the plumbing contract on \$9,500 showroom and garage at 1266 Granville St.



F. A. COMBE

Montreal heating and combustion engineer, who has been engaged by the Dominion Government to investigate feasibility of central heating plants.

PRINCIPLES OF HEATING AND VENTILATION

(Continued from page 19)

cated in various parts of the factory, but under present-day conditions of manufacturing, it is advisable to concentrate the heating sources in one location. If we place our heat source in a location convenient for handling coal and ashes, we must use some medium for carrying the heat from this source to the varied parts of the building where heat is required. The mediums at present in use are air, water and steam, although there are many other substances which could be used and may be used in the future.

The next question is how to get the water, steam or air which we use, to carry the heat from the boiler or source to the place where it is required. All these substances expand when heated and, therefore, weigh less per cubic foot when heated than when cold. This forms the basis on which the gravity systems of heating operate. If the heat is to be carried short distances, the gravity systems give good service, but for larger buildings it is necessary to force the movement by mechanical means, so we have the blower system of hot air heating, the forced hot water system and, in case of steam, the vacuum system which pulls on the system instead of pushing, in order to get rid of air which is difficult to handle in steam systems.

We now come to the practical application of the problem. Gravity hot water and gravity air systems are limited to smaller factories, so that for medium and large factories we have the following: First, the blower system; second, steam heating, either gravity or vacuum, and, third, forced hot water. It is possible to heat a factory by any of these systems, but each has advantages and disadvantages which make it more suitable for certain classes of buildings. We will consider them in order.

Blower System

First the blower system. This system is particularly adaptable to large open buildings such as boiler shops and foundries and also to buildings where ventilation is a prime factor. In open high buildings, if a steam or water system is used, the heat tends to concentrate at the roof, even with the radiators at the floor, so that the temperature at the roof of a high building may be 25 or more degrees hotter than at the place where the men are working. This results in high roof losses. For this work a blower system may be placed at the ground level or in the roof trusses and by means of ducts the heated air is carried to a point within a few feet of the ground where it is blown towards the ground and therefore carries the heat where needed. Fans for buildings of this kind are usually fitted with means for recirculating the air so that the fan may draw part of its air from inside of the building and part from outside and the proportions may be adjusted from time to time to suit the requirements of ventilation and heat. This system seems ideal for build-

Heat of human beings is about 400 B.t.u. per hour per person, the effect of which is very noticeable in such buildings as theatres, which require no heat after the audience arrives.

ings where a large amount of ventilation is required. The air is usually heated to about 125 deg. Fahr. in the coldest weather. It may be heated by means of steam coils supplied with steam from a boiler plant or by means of a hot air heater, although the latter seems difficult to make. The blower system has also been used to heat factory buildings with stories not over 12 ft., but in this case the ducts usually take up a lot of room. To overcome this, the ducts have sometimes been run on the roof or under the basement and the air carried down through hollow columns. Hot air systems of this kind give good ventilation but are expensive to operate unless most of the air is used over again.

Steam and Hot Water Heating

For the ordinary factory, consisting of a building several stories high of 12 to 20 ft. each, radiators either of cast iron or pipe coils are usually placed around the outside walls under the windows and supplied with steam or water. There are various methods of piping these systems. The best is the overhead supply system where the steam or water supply main is carried to the ceiling of the top floor and runs around this and the risers pass down through the building and feed the radiators at the top while return risers are connected to the opposite end of the radiators and are run to the basement and connected to a return main running around the basement ceiling or floor. With this system the steam pipes are easily cleared of condensation so the radiators are supplied with fairly dry steam. The same system may be modified by carrying the steam main around the basement ceiling in place of the attic, and in this case the steam flows upward in the risers instead of downwards. For steam systems a single main may be run in the basement and a single riser to each row of radiators. In this case both steam and condensation flow in opposite directions in the same riser, so that this must be bigger. For hot water systems the nearest to this is the one pipe circuit main in the basement with risers and returns run to radiators on the shunt system or the attic supply and basement return and the one-pipe riser.

Generally speaking, all equipment in connection with low pressure heating systems must be made as simple as possible, as these systems are usually operated by poorly paid firemen who have no idea of caring for good apparatus.

These are the main systems, although there are many modifications. In steam systems one of the main difficulties is to get a proper system for removing the air which is heavier than steam. For this purpose, on cheaper systems, air vents operating on the expansion principle are used, and the air let out into the room; on better systems the outlets from the air vents are connected together and a pump or other suction device placed in the boiler room which draws the air to the basement where it is gotten rid of by an air eliminator. For better systems still it is advisable to install a thermostatic trap on the return end of each radiator. This passes both condensation and air, but closes when steam strikes it.

The returns are usually connected to a pump in the basement, which draws back the condensation and air from the system, and after getting rid of the air, forces the condensation back into the boiler. For smaller buildings, this system will work without a pump, unless the radiators are placed in peculiar positions.

In order to bring the cost of installation of a hot water system to about the same level as a good grade steam system, it is usual to place a safety valve on the expansion tank, set at 10 to 15 lbs. This will allow the water to be carried up to about 225 deg. Fahr. without boiling. A pump with 25 or 30 foot head is also used and this allows the use of very small pipe on an ordinary size building. Under these conditions, the size of radiators will be the same as for steam system and the pipe sizes approximately the same, although they may be made considerably smaller.

The boiler plant is practically the same size no matter what system of heating is used. We know how much heat is required to be put into the building and if we add 15 to 20 per cent. to this for supply and return pipes, which are often placed where most of their heat is wasted, we get the amount of heat which must be put into the building.

There are many types of boilers in use at present. If a factory has no use for exhaust or live steam, it is usual to use low pressure boilers suitable for about 15 lbs. pressure. The cheapest boiler is the sectional cast iron boiler. It is less efficient than a steel boiler and will not stand misuse, but if used carefully, it will, no doubt, outlast any steel boiler, as it is much thicker. Of the steel boilers there is the standard horizontal return tubular boiler, which has been used extensively. If these boilers are set with the boiler well above the grates, they will give good satisfaction. Unfortunately, however, it is hard to get bricklayers to make a good job on boiler setting, with the result that in a year or so air leaks in around the fire and spoils the combustion. For this reason steel firebox boilers of the locomotive type have come into use during the last few years and these have internal firebox and are also made to be put up without brick setting so that the danger of a poor brick setting is eliminated.

There is a new boiler of the water tube type now being put on the market which should give good results. It is really the high pressure water tube boiler adapted to small low pressure work. There are also many makes of patented boilers with many unusual features. The average efficiency of heating boilers is about 60 per cent. and there is not so very much difference between the efficiency of cast iron and steel boilers except in the larger sizes.

On good sized plants it is advisable to use at least two boilers, and each of these are designed to carry about 60 per cent. of the total load so that in severe weather it can be forced to carry almost the full load. It is not usual to use mechanical stokers on heating plants except for very large buildings.

Generally speaking, all equipment in connection with low pressure heating systems must be made as simple as possible as these systems are usually operated by firemen who are poorly paid and have no idea of caring for good apparatus. Even the simplest type of a pump or trap is liable to get out of order and necessitate repairs. It is for this reason that in general, down draft boilers with double grates for burning soft coal without smoke have not proved so efficient in use as they appear on test. The firemen change so frequently that it is very difficult to get the fireman to fire these boilers in a correct manner.

While the design of the low pressure heating system is very simple there are a great many put in without any regard to economy of operation and many put in neglecting some of the fundamental principles.

Central Heating Plants

Where we have buildings in groups to be heated, the best method is to instal a central heating plant and carry lines from this through tunnels to each of the buildings and pipe each building as if it had a heating system of its own, except that the boilers, pumps, etc., are omitted. For large factories the boilers should be of the best grade, and automatic stokers used with coal, and ash handling systems. In these large systems it is usual to use high pressure boilers and generate electric power, using the exhaust steam from the engines for the heating system. When a hot water system is used the exhaust steam is used to heat the water in a heater filled with brass tubes, through which the water is pumped, while around them the exhaust steam circulates. This condenses the steam and at the same time creates a slight vacuum. There is usually an auxiliary live steam heater installed to take care of breakdowns and to be used where there is not a sufficient supply of exhaust steam. The water is circulated by means of centrifugal pumps driven usually by steam turbines. On large systems the friction head is often as high as 100 feet and while this requires fairly large driving

(Continued on page 38)



SAFETY FIRST

One should never leave a clock at the head of the stairs, because it sometimes runs down.

A HINT TO HENS

An Ottawa hen laid an egg daily for 107 days. There's a saying in every hen-house that an egg a day keeps the hatchet away.

START A DAIRY

The following Want Ad appeared in the classified columns of the Journal of A.M.A., recently:

Wanted—Married man to milk and drive Ford. Write F. J. B., 721.

HERE YOU ARE, VIRGINIA

Virginia Reel, 8 year old daughter of a Canadian craftsman asks us to print this one so's her brother can have a laugh:

First Flea: "Been on a vacation?"

Second Flea: No, on a tramp."—S. E.

NO SORDID LIMITATIONS

"Rafferty," exclaimed Mr. Dolan, "your boy threw a lump of coal at my boy!"

"That's a Rafferty for you! When he feels there's a principle at stake, he doesn't think of expense."—S. E.

THE LURE OF "FOUR PER CENT."

An excited but dry citizen rushed into the Bay Street branch of the Ontario Government Bank and slapped down a \$50 bill on the cashier's window ledge. "Gimme two cases," he cried. "What?" asked the astonished cashier. "Two cases of what?" "Two cases—this ought to cover it." "What sort of a place do you think this is? And of what do you want two cases?" "Anything—I'll drink it, whatever it is. I saw a sign in your window that you can get four percent. here!"—S. E.

HARDLY PERSUADED

"You don't know what you are missing," the married man told the bachelor. "You don't know what it is to have a wife waiting for you when you return from work."

"No?" the bachelor murmured.

"No," declared the married man. "Think of the joy of working in the garden. Think of the delight children give you."

"Yes," murmured the bachelor.

"Then, if a wife does sometimes get cross or suspicious, you can always talk her out of it."

"I could if I could lie like you can," the bachelor agreed thoughtfully.—S. E.

THE CABBAGE AND THE POT

A Californian and a New Englander were matching stories.

"Why," said the Californian, "we grow cabbage so big that an army of soldiers can camp under one."

"That's nothing," said the New Englander, "we make copper kettles in New England so big that a thousand men can be rivetting one and yet be so far apart they can't hear each other's hammer."

"Go on," said the Californian, "What would anyone use a kettle of that size for?"

"Why, to boil your California cabbage in," said the New Englander.—S. E.

NO CHANCE

"What were your father's last words?" "Father had no last word. Mother was with him to the end."

A GREAT HIT MISSED

Stage Manager—"All ready, run up the curtain."

Stage Hand "Say, what do you think I am, a squirrel?"

SOME DAISY

He was an earnest minister, and on Sunday in the course of a sermon on the significance of little things, said: "The hand which made the mighty heaven made a grain of sand; which made the lofty mountains made a drop of water; which made you made the grass of the field, which made me made a daisy."

CARFARE

For hours they had been together on her front porch. The moon cast its tender beam down on the young and handsome couple who sat strangely far apart. He sighed. She sighed. Finally: "I wish I had money, dear," he said. "I'd travel." Impulsively, she slipped her hand into his; then, rising swiftly, she sped in the house.

Aghast, he looked at his hand. In his palm lay a dime.

A SNAPPY COMEBACK

The secretary had written to a brother that he had advanced the last payment for him, and unless he came across with some coin, he would be suspended. The secretary received the following reply:

"Deer Secceyterry—I got your letter about what I owe you. Now be pachunt. I aint forget you. Plese wate. When sum fools pay me I pay you. If this wuz judgment day and you wuz no more prepared to meet your Maker as I am to meet your account you sure would have to go to h—. Trusting you will do this, I am."

THE BAIRN'S BREEKS

The Duke of Atholl told this story from the Highlands the other day.

"An aristocratic old lady in the Highlands," said the Duke, "hired a crofter's boy as page, and bought him a livery that was to be worn only on very special occasions."

"One day she gave a dinner party. As she entertained her guests in the difficult ten minutes before the meal was served, a tousled head was stuck into the dining-room and the voice of the new page asked: "Please ma'am, am I to wear me ain breeks or yours?"—S. E.

Catalogs and Booklets

Those interested in any of the catalogs described below can procure a copy of the same by writing direct to these firms. Mention that you noticed this in Sanitary Engineer.

ROOF VENTILATOR CATALOG

The new catalog now available which is being issued by Ewart & Son, Ltd., 346-350 Euston Road, London, Eng., contains twenty-eight pages of clearly defined cuts, detailed sketches and complete descriptions.

This catalog covers a wide range of copper roof ventilators with detailed sketches which show the methods of applying them. Many useful hints are also contained in this catalog on ventilation, inlets, air-ducts, air pressure and exhaust ventilation.

The catalog describes numerous styles, designs and sizes of copper ventilators, ventilating turrets, ridge ventilators, concealed roof ventilators, ship and barge ventilators, malthouse cowls, revolving ventilators, fresh air inlets, electric fans and other ventilating accessories.

Market Conditions and Tendencies

Price Trend on Sanitary and Heating Supplies

Markets at a Glance

THE outstanding feature of the trade during the last two weeks is the way business is keeping up without the assistance of a great deal of cold weather, which generally aids in stimulating fall trade in heating lines. A substantial amount of contract work is still in progress and each day brings forth much repair work as well as many new installations of new heating equipment. The final volume of heating work which is brought forth each year, with the arrival of continuous cold weather has not yet been realized. This business is generally available when it is realized that defective and insufficient heating apparatus must be corrected, and generally is of a sufficiently large volume to keep the trade very busy for several weeks. Supply houses are now carrying sufficient stocks to cope with this extra amount of business,

which is expected to make its appearance at any time.

Easier prices are in evidence on cast iron pipe fittings, as a result of the very low levels struck by pig iron prices last week. Stiffer prices are noted on black, blue annealed and galvanized sheets as well as on lead and solder.

Many price revisions are expected to be issued for 1924 during the month of December as a result of the new sales tax regulations, which become effective January 1.

Business in the West has been of a slightly lighter nature, which tendency is thought to be but temporary, pending the arrival of colder weather which it is expected will have a stimulating effect on trading in heating lines.

Montreal Markets

MONTREAL, Nov. 29.—Trading in the local market is reported as being fairly active. Good sales in furnaces and other heating equipment have been experienced during the past two weeks. Slightly revised prices are issued on galvanized sheets and Canada plates. Firmer prices are now effective on lead sheets and solders.

The ingot metal markets have been somewhat irregular this week owing to fluctuations in price, and the erratic movements of sterling exchange. Ingot markets are somewhat unsettled owing to the European situation and the outlook is more or less uncertain.

LOWER PRICES ON SOME GALVANIZED SHEETS

Montreal.

Prices on some lines of galvanized sheets show a slight revision this week. Canada plates also show a slight revision. Prices in effect locally are given herewith:

BLACK SHEETS—

10 gauge base	4 25	4 50
12 gauge	4 35	4 50
14 gauge	4 45	4 60
16 gauge	5 05	5 15
18—20 gauge	5 20	5 25
22—24 gauge	5 20	5 35
26 gauge	5 25	5 40
28 gauge	5 35	5 60

GALVANIZED SHEETS

	Queen's Head	Fleur de Lis
18-20 gauge	6 65 7 15	6 90 7 15
22 gauge	6 90 7 40	7 15 7 40
24 gauge	7 00 7 50	7 20 7 45
26 gauge	7 25 7 75	7 50 7 75
28 gauge	7 50 8 00	7 75 8 00
Other Brands—		
10 3/4 oz.	7 75	8 00
28 U. S. gauge	7 25	7 50
26 U. S. gauge	6 85	7 10
24-22 gauge	6 65	6 90
20-18 gauge	6 45	6 70
16 gauge	6 25	6 50

Above prices are for 1/2 ton lots in English iron and 1000 lb. lots in American iron with an extra charge of 25c for less quantities. Extra for sheets 3 ft. wide 28 gauge and 10 3/4 oz. 25c per 100 lbs.

Further extra for sheets 4 ft. wide according to gauge.

TIN PLATES—

20 x 28 x 100 lbs. basis	15 50
20 x 28 IC, 112s	16 00
20 x 28 IC, 112s	18 00
20 x 28 IXX, 56s	11 00
28x28 IXXX, 56s	12 50

TERNE PLATES—

20 x 28 IC, 112s, 200 lbs.	14 50
20 x 28 IC, 112s, 214 lbs.	15 00

CANADA PLATES—

Half bright, 60s	6 00
Half bright, 52s	5 90
Blued 52s	5 90
Blued 60s	6 00
Welsh, polished, 60s	7 50
Welsh, polished, 52s	7 75
Galvanized, 52s	7 75
Galvanized, 60s	8 00

PRICES ADVANCE IN LEAD PRODUCTS

Montreal.

Prices have advanced in practically all lines of lead products. In ingot metal markets, lead at the present time is showing considerable strength, and indications from England are to the effect that the present strength will last until the turn of the year at least. Consumption has increased enormously, and the available supply is not sufficient to meet the demand. No relief is coming from Mexico, and indications point to a scarcity of lead in the near future.

Prices on lead sheets and solders all show a slight advance, and are being quoted locally as follows:

LEAD AND ZINC PRODUCTS—

Lead pipe, per 100 lbs., up to 2 in.	14 50
Do., 2 in. to 8 in.	15 50
Do., 8 in. and over.	16 50
Lead waste, per 100 lbs.	15 50
Discount 10 per cent.	
Lead wool, lb.	0 15
Lead sheets, 2 1/2 lbs., sq. ft. lb.	0 11 1/2
Lead sheets, 3 to 3 1/2 lbs., sq. ft. lb.	0 11
Do., 4 to 8 lbs., sq. ft. lb.	0 10 1/2
Cut sheets, 3/4 c. lb. extra and cut sheets to size 1 c. lb. extra.	
Soldier, wiping, lb.	0 25 1/2
Solder, commercial, lb.	0 26
Solder, strictly, lb.	0 27
Solder, guaranteed, lb.	0 30
Solder wire, lb.	0 39
Zinc sheets, casks	0 11
Do., broken lots	0 12

COTTON WASTE PRICES FIRMER

Montreal.

Dealers in cotton waste report that sales in this line have been of a fairly active nature for some time past. Prices are firm and are in effect locally as follows.

Former prices are in evidence in southern markets on most lines of cotton goods. Prices of cotton waste have a tendency to be firmer as a result of these high prices.

COTTON WASTES—

	Per lb.
Cream polishing	0 24
White, XXX extra	0 20
White, XX grand	0 18 1/2
White, XLCR	0 17
X Empire	0 15 1/2
X Press	0 14
Colored—	
Fancy	0 15 1/2
Lion	0 14
Standard	0 12 1/2
Popular	0 10 1/2
Keen	0 08 1/2
Wool Packing—	
Arrow	0 25
Axle	0 21
Anvil	0 17
Dominion Wipers—	
White cotton	0 18
Colored cotton	0 14

PRICES ON COMPRESSION GOODS ARE STEADY

Montreal.

Sales in compression goods are reported as being steady and seasonal. Prices show slight revisions and are quoted locally as follows:

VALVES AND BIBBS—

Compression work, standard.....	48%
Fuller work, standard.....	30%
Quick opening, compression bibbs.....	45%
Bath cocks, quick opening.....	53%
Bath cocks, compression.....	45%
Basin cocks, quick opening.....	50%
Flatway stop and waste cocks, std.....	56%
Roundway stop and waste cocks, std.....	42%
Brass steam cocks, standard, 1/4 in.....	25%
Radiator valves, standard.....	55/25%
Do., removable discs.....	55/25%
Globe, angle and check valves, std.....	20%
Gate or straightway, Webber.....	22%
Emco disc globe valves.....	25%
Emco disc check valves.....	25%
Jenkins globe, angle, check and swing check.....	plus 15%
Jenkins gate or straightway.....	plus 11%
Jenkins iron body, globe and angle.....	10%
Jenkins iron body, gate.....	12%
N. P. "O" and "S" traps.....	34%

FAIRLY ACTIVE SALES MADE IN PIPE FITTINGS

Montreal.

Trading in pipe fittings is reported by dealers as being fairly active. Prices are firm and unchanged.

Discounts prevailing locally are given herewith:

PIPE FITTINGS—Malleable—

Piece list.....	63%
Bushings.....	15%
Tinned straps, net per lb.....	0 20
Sd. unions.....	30%
Railroad unions (black).....	35%
Railroad unions (galv.).....	40%
Crossovers.....	25%

CAST IRON—

Sd. elbows, tees, crosses, cap reducers, etc.....	10%
Extra heavy ditto.....	10%
Plugs.....	10%
Bushings.....	15%
Eccentric reducers.....	plus 5%
Drainage fittings (black).....	22 1/2%
Drainage fittings, (galv.).....	27 1/2%
Flanged unions.....	10%
Companion flanges.....	22 1/2%
Flanged fittings.....	20%
Branch tees.....	5%
Nipples, 1/2 to 4" close and short.....	45%
Ditto, long.....	50%
Ditto, 4 1/2 to 8" close and short.....	35%
Ditto, long.....	40%
Couplings, 4" and under.....	25%
Ditto, 4 1/2 and larger.....	5%

RADIATOR AND BOILER SALES FAIRLY ACTIVE

Montreal.

Sales in radiators and boilers continue to show considerable activity, and as construction is still good locally, dealers anticipate continued good business in this line for some time.

Prices remain unchanged and are given herewith:

RADIATORS AND BOILERS—

Radiator list prices are for 1, 2, 3, 4 and 5 column radiators, per sq. ft.
45 in. to 38 in., \$1; 32 in., \$1.10; 30 in., \$1.15; 26 in., \$1.20; 23 in., \$1.26; 22 in., \$1.30; 20 in., \$1.36; 18 in., \$1.40; 16 in., \$1.50; 14 in., \$1.55; 13 in., \$1.60. Discount 44 per cent for hot water, and 45 per cent. for steam.

Wall radiators—5 ft., \$1.15; 6 ft., \$1.10; 7 ft., \$1.05; 9 ft., \$1.05; 12 ft., \$1.05; Discount 41 per cent.

Boilers—Round t water boilers, sizes from 0 to 10. 52 per cent. off list. Square or sectional hot water or steam boilers, 15 in., 3 per cent. with Ontario Government trimmings, list. Square or sectional water boilers, 19 in. to 36 in., 4 per cent. Square or sectional steam boilers, 19 in. to 36 in., 5 per cent. Ontario Government trimmings, list plus 7 per cent. Square or sectional water or steam boilers, 48 in., list plus 10 per cent. With Ontario Government trimmings, list plus 18 per cent.

Round steam boilers, standard trimmings, 16 per cent. Ontario Government trimmings, 13 per cent.

F.o.b. Montreal, Toronto, Guelph.

CLOSET GOODS SELLING IN FAIR QUANTITIES

Montreal.

A fair volume of business has been done in closet goods during the past two weeks. Prices are unchanged and are quoted locally as follows:

CLOSET COMBINATIONS—

Low Down Outfits,.....	each
Closet, standard outfit, oak.....	24 00
Do., post hinge seat.....	24 50
Do., oak vitro or Pussyfoot.....	24 00
Do., post hinge seat.....	24 50
Do., mahogany vitro or Pussyfoot, post hinge seat and cover.....	27 00
Do., vitreous china, oak post hinge seat and cover.....	29 00
Do., vitreous china, mahogany post hinge seat and cover.....	29 50
Do., white vitro or Pussyfoot, mahogany post hinge seat and cover.....	30 00
Do., enamelled iron tank, oak post hinge seat and cover.....	28 75
Do., enamelled iron tank, mahogany post hinge seat and cover.....	29 00
Add for 3/4" valve on supply pipe.....	1 25
Add for spud.....	0 60
Add for reverse trap bowl.....	1 50
Add for syphon jet bowl.....	7 00
Deduct for supply pipe.....	0 80
Deduct for floor hinge.....	0 60
Richelieu bowl.....	8 00
Washdown bowl with spud.....	9 90
Reverse trap bowl with spud.....	9 90
Syphon jet bowl with spud.....	15 40

CLOSET SEATS—

Oak post hinge seat and cover.....	3 85
Oak wood strip seat and cover.....	3 50
Mahogany finish post hinge seat and cover.....	4 05

CLOSET TANKS—

Low down, oak vitro or Pussyfoot with fittings less seat.....	12 50
White vitro or Pussyfoot with fittings, flush elbow and supply.....	16 50
Vitreous china tank with fittings, flush elbow and supply.....	16 00
Enamelled iron with fittings, flush elbow and supply.....	18 90

PRICES ON RANGE BOILERS REMAIN STEADY

Montreal.

Trading in range boilers is reported as being fairly active at the present time. Prices are steady, and are in effect locally as follows:

RANGE BOILERS—

5 Gallon.....	\$13 50
12 ".....	14 00
18 ".....	15 00
25 ".....	16 50
30 ".....	special net price 8 75
35 ".....	20 50
40 ".....	22 75
52 ".....	38 00
66 ".....	60 75
82 ".....	74 00
100 ".....	103 00
120 ".....	117 00
144 ".....	164 00
168 ".....	187 00
192 ".....	210 00

Discount Standard, 45 per cent.; Extra heavy, 40 per cent.

TRADING IN ENAMELLED WARE FAIRLY ACTIVE

Montreal.

Trading in enamelled ware is reported as being fairly active during the past two weeks. Prices are steady and are in effect locally as follows:

ENAMELLED WARE—

Sinks, flat rim—.....	1 only	2 only	3 only
16 x 24.....	\$ 7 50	\$ 7 40	\$ 7 30
18 x 30.....	8 70	8 60	8 50
20 x 30.....	9 90	9 80	9 70
Bath tubs, roll rim, 4, 4 1/2, 5 feet, 24 to 30 in. wide.....	51 40		
Bath tubs, 5 1/2 feet.....	57 10		

Lavatories—

17x19 in. Apron F139 or P4045.....	15 80
18x24 in. Apron F154 or P3845 or P3847.....	23 60
18x21 in. Apron F169 or P4205.....	17 60
17x19 in. Roll rim. F241 or P4345.....	12 60

Less 35 per cent.

CONTINUED CONSTRUCTION AIDS SALE OF SOIL PIPE

Montreal.

Trading in soil pipe is reported as being quite brisk at the present time. Construction is good locally, and with a continuance of open weather sales in this line are expected to hold up for some time. Discounts in effect locally are as follows:

SOIL PIPE—

2 and 3 inch.....	27%
4 inch.....	32%
5 and 6 inch.....	27%
8 inch.....	5%

FITTINGS—

2 to 6 inch.....	44%
8 inch.....	5%

METAL LATH SELLING IN GOOD VOLUME

Montreal.

Sales in metal lath are reported by dealers as being quite good at the present time. Prices are steady and are being quoted locally as follows:

METAL LATH—

Painted—.....	per sq. yd.
26 gauge.....	23c.
24 gauge.....	25c.
32 gauge.....	32c.
Galvanized, 5c. per sq. yd. extra.....	

CORRUGATED SHEETS SELLING QUITE SEASONABLY

Montreal.

Sales in corrugated sheets are showing up quite seasonably. Prices are steady and are given herewith:

CORRUGATED SHEETS—.....	Per 100 sq. ft.
No. 28 gauge.....	7 00
No. 26 gauge.....	7 50
No. 24 gauge.....	10 00
No. 22 gauge.....	12 50
No. 20 gauge.....	14 00
No. 18 gauge.....	19 00
Less 10 per cent.....	

Lighter than 24 gauge and wider than 27 ins., 75 cents per square extra

WEEK'S MARKET QUIET IN SCRAP MATERIALS

Montreal.

Dealers in scrap materials report that the market is very quiet at the present time. Markets are very weak at the present time, and, while a slight strengthening was noticed during the past two weeks, prices have again fallen back to old levels.

Average buying prices locally are as follows:

SCRAP—

Automobile Tires.....	0 35
Rubber Shoes.....	0 02
Yellow brass.....	0 06
Red brass.....	0 08
Light brass.....	0 04 1/2
Scrap zinc.....	0 05
Lead, heavy.....	0 05 1/4
Lead, tea.....	0 02
Heavy copper.....	0 11 1/2
Heavy copper.....	0 11 3/4
Wrought iron, R. Rd. No. 1 per gr. ton.....	14 00
Malleable scrap (ton).....	16 00
Pipe scrap (ton).....	8 50
Heavy melting steel.....	9 50
No. 2 busheling.....	5 00
Boiler plate.....	12 00
No. 1 machinery cast.....	20 00

UNSETTLED TONE NOTED IN INGOT METAL MARKETS

Montreal.

The metal markets have been somewhat irregular in tone this week, owing to fluctuations in prices, and the erratic movements of sterling exchange. Markets are somewhat unsettled owing to the European situation, and the outlook is more or less uncertain.

TIN.—After a slight reaction last week, this metal has resumed its upward trend and a new high level has been reached. With the sharp recovery of sterling exchange delivery prices have advanced considerably. Local prices are now based on winter freight, which means a higher level of values here. The local market is very strong at 51 cents per pound.

COPPER.—The advance last week in both markets has not been maintained, and prices have fallen back to some extent. Producers having sold a fair tonnage, have more or less withdrawn from the market temporarily. It is probable that fluctuations such as have just taken place will be seen for a time until the market definitely turns upward. Production has to be curtailed still further and consumption increased before a permanent improvement can take place. The local market is quiet at 18½ cents for English, and 18 cents for Chinese.

LEAD.—This metal has been remarkably steady this week, the London price having been the same for several days

and the United States also steady. While prices are high, there is no surplus of lead, but rather a shortage, and no relief can be looked for just yet. The local market is strong at 9 cents per pound.

SPELTER.—This metal has been disappointing, as both markets have declined somewhat, and especially in the United States. In view of the very high figure being paid for ore, it is impossible to produce zinc at present prices at profit, and an improvement should soon be forthcoming. There is no export business in sight as yet, but the erratic tendency of exchange has made this difficult. The local market is quiet at 9½ cents.

ANTIMONY.—The tone of this metal remains quite firm, but the immediate demand has been pretty well satisfied, and there is a tendency to await developments. The outlook remains good, and there is no prospect of an appreciable reduction in price in the near future. The local market is strong at 9 cents for English and 8½ cents for Chinese.

Toronto Markets

TORONTO, Nov. 29.—Trading during the past week has been of a very satisfactory nature, plumbing and steamfitting work having kept up remarkably well as a result of the continued open weather. Jobbing houses report that the fall sale of stoves, furnaces and boilers has been of a substantial nature, and well up to the average.

A number of revisions in price have been made, which include a decline in cast iron pipe fittings, and advances in some galvanized sheet prices, tin plates, and ingot tin and antimony. Pig iron prices declined to a low figure but recovered to some extent. Some cutting is in evidence on sheet zinc prices locally, though the tendency at present in lead and zinc goods prices is toward higher levels. A new list on sink and stove bolts has been adopted in U.S., which includes some higher prices. It is expected that this list will be made effective in Canada in the near future.

REDUCTION IN EFFECT ON PIPE FITTINGS

Toronto.

As a result of heavy declines in pig iron prices locally during the last three months and especially as a result of heavy declines during the past month, a reduction has been made effective in the prices of cast iron pipe fittings.

Cast iron elbows, tees, etc., standard sizes, which formerly took a discount of 10 per cent., now are subject to 20 per cent. off. Plugs, solid, countersunk, standard, are quoted at 20 per cent. off instead of 10 per cent. Bushings now take a 20 per cent. discount in place of 15 per cent., and flanged unions are now being quoted at 15 per cent. off list.

Some price cutting is being noticed in malleable pipe fittings. There has been practically no reduction in basic prices of malleable iron, and formerly quoted prices are in a good many cases still maintained; however, in some cases prices are being quoted in malleable pipe fittings, which will be noted by a

range in discounts given herewith, along with the new cast iron fitting discounts which have been made effective.

PIPE FITTINGS—

CAST IRON FITTINGS—

Elbows, tees, etc., standard sizes.....	20%
Plugs, solid, countersunk and std.....	20%
Bushings	20%
Flanged unions	15%
Flanged fittings	20%
Drainage fittings, black	22½%
Do., galvanized	27½%
C. I. Stop cocks, up to 4".....	25%
C. I. Stop cocks, up to 4" with brass plug ..	15%
Ringhangers	30%

MALLEABLE FITTINGS—

Bushings	15% to 20%
Hex. nipples, R. & L.	25%
Steam cock wrenches	30%
Union ells and tees	40%
Boiler fittings (old style).....	32½%
Do., (new style)	27½%
Lip unions, all sizes	30% to 32½%
Dart unions, blk. up to 2".....	27½%
Dart Unions, blk. 1½" also 2½" and over	10 and 10%
Wrought nipples to 4" close & short ..	45%
Wrought nipples up to 4" long.....	50%
Wrought nipples, 4½ in. and up long....	40%
Wrought nipples, up to 4" close & short ..	45%
Do., 4½" and up. close and short.....	35%
Malleable fittings, sold from price list, less	63% to 65%

FLAT SHEET PRICES SLIGHTLY EASIER

Toronto

Prices have declined on black sheets to the extent of 5c. per 100 lbs. locally. Prices in the United States on this line are not easing off to any extent, as consumers' stocks appear to be low, and there is some apprehension as regards supply in event of interrupted steel production next year.

In some parts a strong tone in black and galvanized sheets is significant, as consumers are cutting stocks.

Blue annealed sheets have become more settled in price at a base of \$4.60. New prices are given herewith:

BLACK SHEETS—

18-20 gauge	5 40
22-24 gauge	5 45
26 gauge	5 50
28 gauge	5 60
A charge of 25c per 100 lbs. is made for less than case lots. An extra 10c. per 100 lbs. is also charged on sheets 2½ in. wide.	
BLUE ANNEALED SHEETS—	
10 gauge, base	4 60
12 gauge	4 65
14 gauge	4 70
16 gauge	4 80
1½-in. and heavier, base.....	3 60 3 75
3-16 in.	3 95 4 25

GALVANIZED SHEETS ADVANCED TO \$6.75 BASE

Toronto.

Premier and Apollo galvanized sheets have undergone an advance in price. The base price now on 28 gauge, is \$6.75, whereas the former prices were ranging on this gauge from \$6.50 to \$6.65 per 100 lbs.

Not nearly so much cutting is going on locally, as was the case a short time ago. The prices published on galvanized sheets are representative of the lowest prices being quoted at present.

A stiffening has been noted at primary sources in all lines of flat steel sheets Queen's Head and Fleur de Lis sheets remain at formerly quoted levels. The new prices on Premier and Apollo sheets are given herewith:

SHEETS, GALVANIZED—

Premier and Apollo Brands—	per 100 lbs.
10¾ oz., 3 ft. wide.....	7 35
10¾ oz. narrower	7 15
28 U. S. gauge, 3 ft. wide.....	6 95
28 U. S. gauge, narrower.....	6 75
26 U. S. gauge	6 45
22 and 24 U. S. gauge	6 30
18 and 20 gauge	6 15
16 U. S. gauge	6 00
12 and 14 U. S. gauge.....	5 85
F.o.b. and delivered in Toronto.	

An extra 20c. per 100 lbs. is charged for Keystone and Premier brands copper-bearing sheets.

QUEEN'S HEAD—

28 gauge, base	7 50
26 gauge	7 10
24	6 80
22	6 65
18 to 20 ga.	6 25

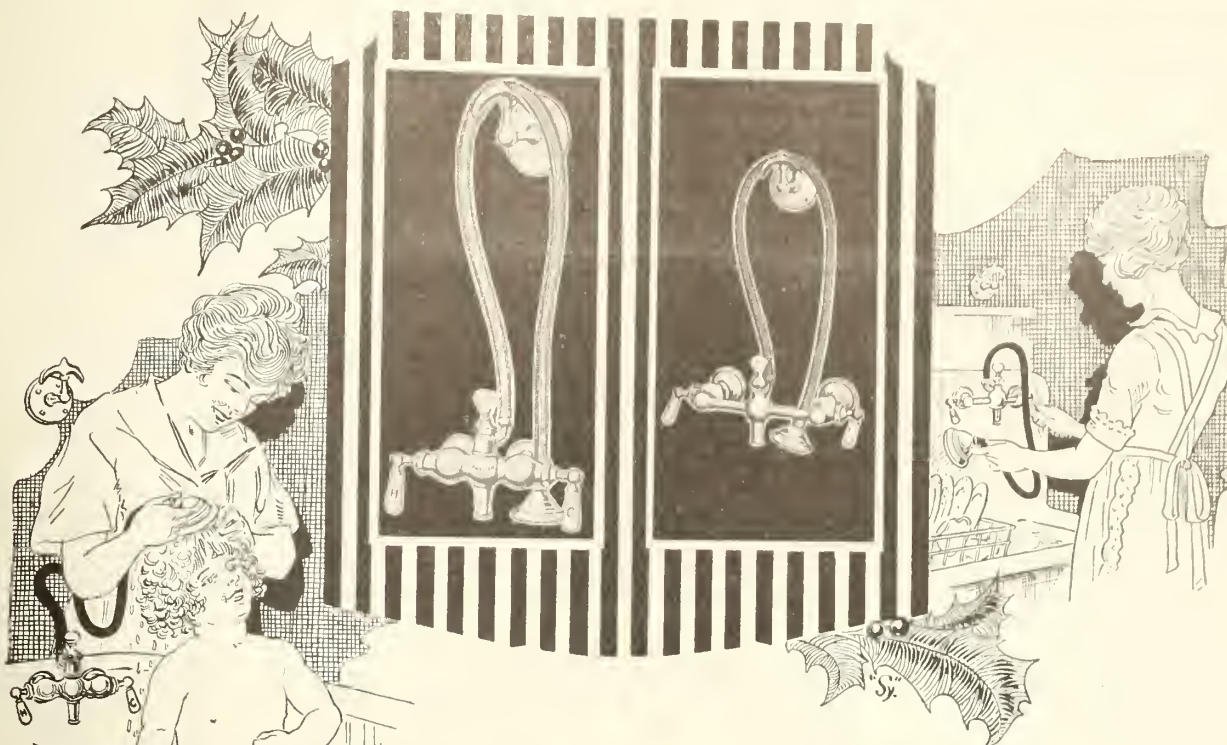
FLEUR DE LIS—

28 gauge base	7 00 7 25
26	6 60 6 85
24	6 30 6 55
22	6 15 6 40
18 to 20 ga.	5 75 6 00

NEW STOVE BOLT LIST MAY BE ADOPTED

Toronto.

A new stove and sink bolt list of prices has been adopted in the United States. The larger sizes on this list show slight advances in price and the smaller sizes remain the same. The ¼ inch lengths



Why Not Make This a Plumbers' Christmas

WHY SHOULDN'T the plumber get his share of the retail trade? For instance, a big demand for our Tub Shower Bath Faucet and Combination Sink Faucet for Christmas giving will be created through our advertisements now running in MacLean's Magazine featuring these two sensible Christmas gifts, and you can co-operate by running an advertisement in your local paper.

The people are always clamouring in the Christmas gift season for something which will not be put away on shelves and the giver and gift forgotten. They want an article that will be used 365 days in the year, something really useful, something that will reflect the giver's good wishes in after days.

With a prominent display of the Tub Shower Bath Faucet and the Combination Sink Faucet you are sure to benefit from the demand which these two articles have merited by solving the Christmas gift problem.

H. MUELLER MFG. CO., LIMITED

SARNIA, ONTARIO



Water, Plumbing and Gas Brass Goods and Tools. Forgings in Brass and Bronze. Screw Machined Products, American Factory at Decatur, Ill., U.S.A. Branches: New York, San Francisco and Los Angeles, Cal. Mueller Metals Co., Port Huron, Mich., Makers of "Red Tip" Brass Rod, Brass and Copper Tubing.

over 3 inches have been eliminated. The new list is not in effect in Canada as yet, but it is expected that it will become effective in the near future.

SOME TIN PLATE PRICES ADVANCE FIFTY CENTS

Toronto.

An advance of 50c. per box has been put into effect on coke tin plates. A considerable stiffening has been noticed in prices at primary sources on these lines of late and the present advance is no doubt a reflection of the firming of prices in the United States and English markets. Prices now in effect are given herewith:

PLATES, (COKE TIN)—

25x28 100 lbs., basis, box	15 50
20x28 IC, 112s, box	16 00
20x28 IX, 112s, box	18 50
20x28 IXX, 56s, box	10 50
20x28, IXXX, 56s, box	11 50
20x28, IC Terne, 112s, box	16 00

PLATES (CHARCOAL TEN)—

20x28 IX, 56s, box	9 50	12 75
20x28, IXX, 56s, box	11 00	14 00

Small Lots
Per C. lbs. Lots

TIN PLATES—(For Boilers)—

14x60 IXX, 56 sheets per case..	12 50	12 00
14x60 IXXX,	12 50	12 00

TINNED SHEETS FOR MILK CANS—

16½ x 41¼ 18 ga.	9 65	9 15
21 x 41¼, 18 ga.	9 65	9 15
30 x 72, 20 ga.	14 50	14 00
30 x 45¼, 2 ga.	10 16	9 65
30 x 50, 22 ga.	10 25	9 75
30 x 54, 22 ga.	10 30	9 80
30 x 78, 22 ga.	10 35	9 85
30 x 72, 22 ga.	15 00	14 50
36 x 84, 22 ga.	15 00	14 50
42 x 84, 22 ga.	15 75	15 25
48 x 96, 22 ga.	16 50	16 00
30 x 50, 24 ga.	10 25	9 75
30 x 54, 24 ga.	10 30	9 80
60 x 58, 24 ga.	10 35	9 85
30 x 72, 24 ga.	15 00	14 50
36 x 84, 24 ga.	15 00	14 50
42 x 84, 24 ga.	15 75	15 25
30 x 72, 26 ga.	15 50	15 00

SHARP ADVANCE ON INGOT TIN

Toronto.

Local prices have been advanced \$2.75 on tin, making a price of \$52.50 per 100 lbs. Some dealers are looking for further advances in tin, due to the fact that English and United States interests have not as yet covered their requirements.

Lead ore prices are up \$1 per ton, but as yet this has not reacted on pig lead prices, which remain at prices quoted in last issue.

A firmer undertone is existent on copper, primary market prices are up ¼c., but prices remain the same as before in the local market.

Antimony prices have advanced to \$9—\$9.50.

Spelter and aluminum are steady and unchanged in price. Prices in force are given herewith:

INGOT METALS—

Copper, \$18.00 to \$19.00; Tin, \$52.50; Lead, \$8.50; Spelter, \$9.00; Antimony, \$9.00 to \$9.50; Aluminum, \$23.00 to \$25.00.

HIGHER PRICES LOOKED FOR IN SCRAP

Toronto.

The quiet market conditions relating to scrap materials which have been the case for some months past are still existing. No changes in price have been issued during the past two weeks on any

scrap lines, and business is reported to be quiet so far.

Markets in the United States have shown some improvement and prices have moved upward. This condition is expected to be reflected in the local market in the near future and higher prices are looked for.

PIG IRON PRICES RECOVER AFTER DECLINE

Toronto.

Heavy production in Buffalo district caused a decline of \$1.25 per ton in pig iron prices a week ago and low prices of \$27.05 for No. 1 and \$26.55 for No. 2 were being quoted, but during the past week, heavy buying in pig iron has taken place with the result that prices have recovered to the extent of \$1.10 per ton and are now being quoted as No. 1 \$28.15 and No. 2, \$27.65.

PIG IRON—

No. 1, per ton	28 15
No. 2, per ton	27 65

RADIATORS AND BOILERS HAVING GOOD SEASON

Toronto

Heating equipment, such as furnaces, radiators, boilers, and heaters up until the present have been selling well. Dealers report that aside from good quantities of repair work, a good quantity of new installations in heating equipment have been sold.

Prices are steady and unchanged and are given herewith:

RADIATORS AND BOILERS—

Revised radiator list prices are for 1, 2, 3, 4 and 5-column radiators per square foot.
38 in., \$1; 32 in., \$1.10; 30 in., \$1.15; 26 in., \$1.20; 23 in., \$1.26; 22 in., \$1.30; 20 in., \$1.36; 18 in., \$1.40; 16 in., \$1.50; 14 in., \$1.55; 13 in., \$1.60.

Discount on 2, 3, 4 and 5 column standard sizes, 44 per cent. for water and 45 per cent. for steam.

Discount on 1-column standard size, and 2, 3, and 4-column hospital sizes 36 per cent. for water and 37 per cent. for steam.

Discounts on 1 column hospital size water 22 per cent. Steam 23 per cent.

Wall radiators—5 ft., \$1.15; 6 ft., \$1.10; 7 ft., \$1.05; 9 ft., \$1.05; 12 ft., \$1.05. Discount 41 per cent.

BOILERS—

Water:

Round 52 per cent. off list. Square 8 per cent. off list.

Steam:

Round, 13 per cent. off list; Square, list plus 7 per cent.

SOME CUTTING NOTED IN SHEET ZINC PRICES

Toronto.

The tendency of primary markets in lead and zinc goods is in an upward direction at present and many importers are looking for higher lead prices in the immediate future.

Contrary to this trend, local prices are slightly easier in sheet zinc in some quarters. It is evident that considerable price cutting is existent, which is confined to sheet zinc.

The prices on lead and solder goods are steady but firm locally, and the price of 11 cents for full casks and 12 cents for less lots is mostly in evidence though quotations exist in sheet zinc as low as 10 cents per lb. for full

casks, and 11 cents per lb. for less than full casks.

LEAD AND ZINC GOODS—

Lead pipe, per 100 lbs., up to 2".....	14 50
Do., 2" to 8".....	15 50
Do., 8" and over.....	16 50
Lead waste, per 100 lbs.....	15 50
Note—Lead pipe is subject to a discount of 10 per cent.	
Lead traps and bends	15%
Lead wool, lb.	0 14½
Lead sheets, 2½ lbs., per sq. ft., per lb.	0 12½
Lead sheets, 3 to 3½ lbs., sq. ft. lb.....	0 11
Do., 4 to 8 lbs., sq. ft. lb.....	0 11
Cut sheets, ¾c. per lb. extra.	
Cut sheets, to size, 1c. per lb. extra.	
Solder, guaranteed, lb.	0 30
Do., strictly, lb.	0 31
Do., commercial	0 26½
Do., wiping	0 28
Do., wire	0 34½
Zinc sheets, casks, lb.....	0 11
Do., do., less, lb.	0 12

INCREASED SALES NOTED IN VALVES AND COCKS

Toronto.

During the past two weeks, the sales of valves and cocks have shown an increase.

Prices are unchanged from former levels, which are given herewith:

VALVES AND COCKS—

Radiator valves, Q. O.....	70.2%
Do., removable discs	68.6%
Globe Angle and check valves, std.....	25%
Gate or straightway	25%
Emco globe valves, std.	20%
Emco check valves, std.	20%
Emco gate valves, std.	35%
Emco disc Globe	35%
Jenkins globe, angle and check valves	

+15 less 10%
Emco swing check valves, ¾, ½, and 1 in. 35%
Emco swing check valves, other sizes. 28%
Jenkins gate or straightway + 11 less 10%
Jenkins iron body, globe and angle

+ 10 less 10%
Jenkins iron body, gateless 12½ & 10%
Jenkins swing check valves + 21 less 10%

J. M. T. valvesplus 5%

J. M. T. style C valvesnet

J. M. T. gate valves12½ and 10% off

Webber pattern valves22%

COCKS (Steam)—

Brass steam cocks, 2½ in. to 3 in..... 43%

Brass steam cocks, ½ in. to 2 in.....50%

Brass steam cocks, std., ¼ in.....25%

VALVES, FOOT—

1¼ in. Blk. Galvd.

1½ in. 0 77 1 16

2 in. 1 05 1 57

2 in. 1 32 1 98

EAVESTROUGH AND CONDUCTOR PRICES FIRM

Toronto.

Owing to the firming up in galvanized sheet prices, the local prices of eavestrough and conductor pipe have become somewhat firmer.

No changes have as yet been made in these prices.

Present prices are given herewith:

TROUGH (Eave)—

O. G. Square Bead—

Per 100 ft. Per 100 ft.

8 inch\$15 90 15 inch.....\$34 50

10 inch 17 70 18 inch..... 44 00

12 inch 21 20

O. G. Round and Half Round—

8 inch 16 90 15 inch..... 35 50

10 inch 18 70 18 inch..... 45 00

12 inch 22 20

Less 65 and 5 per cent.

PIPE (Conductor)—

Plain, round or corrugated

Per 100 ft. in 10 ft. lengths

2 in., in 10 ft. lengths, list..... 18 40

3 in. in 10 ft. lengths, list..... 22 30

4 in. in 10 ft. lengths, list..... 29 60

5 in. in 10 ft. lengths, list..... 48 00

6 in. in 10 ft. lengths, list..... 58 80

Less 65 and 5 per cent.

CONDUCTOR ELBOWS—

Plain, round or round corrugated:

2 inch, list\$ 5 25

3 inch, list 6 00

4 inch, list 10 50

6 inch, list 29 00

Elbows, outlets, cut offs, tubes and conductor hooks, list less 50 and 10 per cent.

The Perfection Towel Bar



A dusty pair of shoes will counteract the efforts of the most efficient tailor.

The same applies to your bathroom—the jarring note produced by one commonplace fixture affects the whole scheme.

Perfection Towel Bars fit in, in fact enhance the most elaborate bathroom layout.

They are made in types and sizes to harmonize with the modest home bathroom or the palatial natatorium.

Each Perfection Bar comes complete—ready for installation.

Your jobber will be pleased to show you the Perfection Line.



The Beaton & Cadwell Mfg. Co.

New York Office and Store, 234 Water St.

*Pioneers and Largest Plate
Manufacturers in the Country*

"Genuine"



Perfection Line

STEADINESS NOTED IN BRASS GOODS PRICES

Toronto.

No changes have been recorded during the past two weeks in brass goods and lavatory fittings. Steadiness is noted in connection with the prices on these lines.

Prices ruling at present are given herewith:

BRASS GOODS—	
BATH COCKS (Compression)—	
N. P. brass handles or indexed No. 3825	3 78
No. 4 Std. Comp. Double Bath, No. 3829F	4 51
Ditto with China Index, No. 3830F	4 51
BATH COCKS (Quick Opening)—	
Brass handle on top, No. 3850 F	4 59
China handle on top, No. 3850 F	4 72
Quatern Top China Hdle. A. 3200	4 75
Brass handle on side, No. 3851F	4 95
(less Jewell's cup)	
China handle on side, No. 3852 F	5 00
(less Jewell's cup)	
Quatern Side China Hdle. A3500	5 15
A2395 Mueller type Shower Faucet	9 25
¾ in. N. P. Brass Supply Pipes, pair	2 20
½ in. N. P. Brass Supply Pipes, pair	2 30
½ in. Galvanized Iron Nickel Plated Supply Pipes	2 05
Waste and overflows, 19 ge. 1½ in.	
T. B. L.	4 00
1¼ or 1½ Overflow and Waste 18 gauge, N. P. on rough	3 00
1* T.B.L. Overflow and Waste, 18 gauge, N. P. on the rough	4 00
Deep Seal Por. S. N. P. traps, no vent	3 55
LAVATORY FITTINGS	
Riley Basin Cocks China Index, per pair	7 00
Riley Jr. Basin Cocks, China Index, per pair	6 00
Adanac Basin Cocks, Brass Handle, No. 3632, per pair	4 68
Adanac Basin Cocks, China Handle, No. 3635, per pair	5 20
Quatern Basin Cocks, side China hdle., A2000, per pair	5 00
Quick Opening Basin Cocks, Brass Hdle. No. 3630, per pair	3 70
Quick Opening Basin Cocks, China Handle, No. 3633, per pair	4 28
Quatern Basin Cocks, Top China Hdle. A1900, per pair	3 80
Fuller No. 0 Basin Cocks, Brass Handle, No. 3650, per pair	4 10
Fuller No. 0 Basin Cocks, China Handle No. 3651, per pair	5 04
Midget No. 0 Basin Cocks, No. Index, No. 3623 per pair	3 10
Midget No. 0 Basin Cocks, With Index, No. 3623, per pair	3 10
¾ in. N.P. Brass supplies to wall or floor	2 20
¾ in. Galv. supplies N. P.	2 05
1¼ in. N.P.S. Traps to floor No Vent 20G No. 4458	3 46
1¼ in. N.P.S. Traps to floor with Vent 20G No. 4462	4 53
1¼ in. N.P.P. Traps, No Vent 20G No. 4450	2 74
1¼ in. N.P.P. Traps No Vent Toronto By-law No. 4450	2 97
1¼ in. N.P.S. Traps with Vent Toronto By-law No. 4462	4 98
1½ in. N.P.S. Traps with Vent Toronto By-law No. 4462	6 67
2 in. N.P.S. Traps with Vent Toronto By-law No. 4462	14 00
Patent Overflow basin plugs	0 71
Pop up waste	5 00
Unique waste China Knob	5 50
Unique waste China Index	5 00
1¼ in. Deep Seal Trap No Vent	3 75
1½ in. Deep Seal Trap No Vent	6 00
1¼ in. Elliptic Trap	6 50
1½ in. Elliptic Trap	9 00
Whirlpool N.P. Traps list prices less	15%

PRICES OF CANADA PLATES ARE VERY FIRM

Toronto

Prices on Canada plates at present are very firm. Distributors report that sales have kept up remarkably well in this line and prices have been maintained almost without exception.

The levels being quoted at present are given herewith:

CANADA PLATES—		Per box	
	American	Welsh	
Ordinary, 75s	5 85	.....
Ordinary, 60s	6 00	6 10	
Ordinary, 52s	5 90	6 00	

Blued, 75s	6 15	.....
Blued, 60s	6 00	6 25
Blued, 52s	5 60	6 15
Blued and oiled, 75s	6 25	.....
Blued and oiled, 60s	6 10	.....
Blued and oiled, 52s	6 00	.....
Polished, 75s	7 05	.....
Polished, 60s	6 90	7 35
Polished, 52s	6 80	7 25

SALES OF COMPRESSION GOODS SHOW IMPROVEMENT

Toronto.

Sales during the past fortnight have shown some improvement over the two weeks previous. Business has kept up well in these lines.

Prices are unchanged from levels quoted herewith.

COMPRESSION GOODS—

Compression stops No. 3450 brass fin., ½ inch, each	0 86
Compression stops, No. 3450, N.P., ½ inch, each	1 01
Lavatory stops, No. 3466, N.P., ¾ in., ea.	1 21
Do., No. 3468, N.P., ¾ in., each	1 21
Compression stop and wastes, No. 3483 ½ inch	0 89

Compression stop and wastes, ¾ in.	1 29
Brass finished bibbs, ½ in., No. 3000, each	0 86
N.P. finished bibbs, ¼ in. No. 3000, ea.	1 01
Brass hose bibbs, ½ in. No. 3001, ea.	0 99
N.P. hose bibbs, ½ in. No. 3001, ea.	1 14
Loose flange bibbs, ½ in. N.P. No. 3208	1 43
Loose flange hose bibbs, N.P. ½ in.	
N. P. No. 3029	1 56
Compression Bibbs No.'s 3001-3041	48% Off
Compression Bibbs No.'s 3053-3058	43% Off
Compression Bibbs, No.'s 3084-3085	49% Off
Quick Opening Comp. Bibbs, 3100-3115	45% Off
Quick Opening Comp. Bibbs, 3116-3119	45% Off
Quatern Q. O. Bibbs, A200, A1002	45% Off
Ball or roller bearing, self-closing, 3338-3850	40% Off
Stops also stop and waste cocks—	
Compression, 3450-3453	48% Off
Compression, 3462-3463	43% Off
Compression, 3466-3479	45% Off
½ inch as 3483 listed at \$32.40 doz.	less 67%
Urinal cocks, compression, 3500-3508	25% Off
Sill and boiler drain cocks, 3560-3568	50% Off
½ and ¾ list only used.	
Add 10c net for N. P. or finished.	
Boiler Drain cocks, No. 3571, net	0 72
Bath cocks, quick opening	53%
Bath cocks, compression, plain hdle.	45%
Bath cocks, compression, indexed hdles.	45%
Basin cocks, quick opening	50%
Basin cocks, compression	36%

Winnipeg.

WINNIPEG, Nov. 29.—Plumbing and heating supply firms report business somewhat less in volume as there is less building activity. Air valves and elbows show a revision in price. Basin connections are quoted at lower levels. Basin supply tips have moved upward. Force cups show a slight decline. Candle wick has advanced to seventy-five cents per pound.

AIR VALVES AND ELBOWS SHOW A REVISION IN PRICE

Winnipeg.

Air valves and elbows show a revision in price. Quotations are list price less 55 per cent.

LOWER QUOTATIONS IN EFFECT ON BASIN CONNECTIONS

Winnipeg.

Lower prices are in effect on basin connections. No. 844 with patent flexible joint is quoted at \$3.60 per doz.; No. 845, bent, at \$4.80 and No. 845½, with adjustable threaded point at \$5.40 per dozen.

BASIN SUPPLY TIPS SHOW AN ADVANCE

Winnipeg.

Basin supply tips show a slight advance and No. 925, size ¾ in. is quoted at 75c. per doz.; No. 925B at 70c. per doz.

NICKEL PLATED COCK HOLE COVERS MOVE UPWARD

Winnipeg.

Nickel plated cock hole covers are quoted at 18c. each. This is an advance over former levels.

FORCE CUPS QUOTED AT LOWER LEVELS

Winnipeg.

Lower quotations prevail on red rubber force cups. Size 4 in. is quoted at \$5.40 per doz. and 4½ in. at \$6.20.

REVISION IN DISCOUNT ON STANDARD BRASS VALVES

Winnipeg.

Standard brass valves show a revision in discount and quotations are list price less 20 per cent.

COTTON CANDLE WICK ADVANCES TO SEVENTY-FIVE CENTS

Winnipeg.

Price of cotton candle wick has advanced and it is now selling at 75c. per pound.

BATH AND LAVATORY SUPPLY PIPES IN FAIR DEMAND

Winnipeg.

There is a fair demand for bath and lavatory supply pipes. No. 849, nickel plated bath supply pipes, are quoted at \$2.75 per pair. Quotations on lavatory supply pipes are as follows:

LAVATORY SUPPLY PIPES—

No. 855, plain 9/16 in. tube, per pair	2 50
No. 855A, plain ¾ in. tube, per pair	2 50
No. 856, plain ¾ in. tube, per pair	4 30

STEADY DEMAND FOR THREADED COLLARS

Winnipeg.

There is a steady demand for threaded collars and the following lines are quoted as follows:—No. 964, cast brass with iron pipe connections and solder joint, are quoted as listed below:

THREADED COLLARS—	Each
Number 964, Size 1¼ x 1¼, each	0 12
Number 964, Size 1½ x 1¼, each	0 19
Number 964, Size 1½ x 1½, each	0 13
Number 965, Size 1¼ x 1¼, each	0 21
Number 965, Size 1½ x 1¼, each	0 25
Number 965, 1½ x 1½, each	0 24

NO CHANGE IN EAVESTROUGH OR CONDUCTOR PIPE

Winnipeg.

There is little change to report on eavestrough or conductor pipe. Sales have been quiet during the past few weeks and local quotations show no change.



A TYPICAL INSTALLATION OF CRANE EQUIPMENT IN A FINE HOTEL WASHROOM

BUILDING LONG LIFE INTO EQUIPMENT

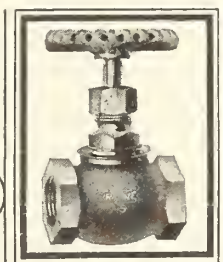
Matching the visible beauty of Crane sanitation fixtures is the assurance of lasting satisfaction guaranteed by sound principles in construction. Their design is guided by knowledge gained from sixty-seven years of experience and well directed research. Suitable materials are used and careful work-

manship is applied in every manufacturing operation. Rigid inspections and tests imposed on all Crane equipment guard uniform quality. Crane valves, fittings and piping satisfy every requirement of the most elaborate sanitation, heating, water and vacuum systems now installed.

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*Branches and Sales Offices in 21 Cities in Canada and British Isles
Works: Montreal, Canada, and Ipswich, England*



Crane Low Pressure Globe Valve No. 1-B

COTTON WASTE PRICES REMAIN STEADY

Winnipeg.

A firmer tone is noted in cotton waste, although as yet no change in price has occurred locally. The tendency is expected in an upward direction.

NO CHANGE IN ENAMELED WARE PRICES

Winnipeg.

Prices continue steady on enameled ware. Sales are reported quiet at the present time.

LEAD AND ZINC GOODS PRICES FIRM

Winnipeg.

Prices on lead and zinc goods are ruling firm at the present time and sales are reported to be seasonable.

RANGE BOILERS REMAIN FIRM AT PRESENT LEVELS

Winnipeg.

Prices on range boilers show no change as compared with former prices recorded.

SEASONABLE SALES FOR CORRUGATED SHEETS

Winnipeg.

Corrugated sheets are reported by dealers to be selling seasonable and prices continue steady.

SOIL PIPE PRICES FIRM AT FORMER LEVELS

Winnipeg.

There is little change to report on soil pipe. Prices remain steady under a seasonable demand.

PRINCIPLES OF HEATING AND VENTILATION

(Continued from Page 29)

units, it saves in size of piping required and as long as the exhaust steam can be used, the reduction in pipe sizes is obtained at comparatively small cost. There are several advantages of water over steam for spread out buildings, one being that the water main may follow the contour of the ground and no drips are necessary. Another advantage is that the temperature of the water may be adjusted to suit the outside temperature so that no valves need be touched, while a steam system must give almost constant temperature to the radiators and therefore these must be opened or closed a number of times each day or the buildings become overheated. Where a number of buildings are to be heated from the same main and they are situated at various distances from the power house, a differential pressure valve is used and set so that the pressure between the supply and return to any one building will remain practically constant regardless of changes in the pressure in the mains.

Ventilation

In large open factories where employees are not placed close together and there are plenty of windows, mechanical ventilation is unnecessary unless there are fumes such as in a foundry. In other buildings, however, where

Foreign Trading Curtails Price Cutting

AT THE present time very little price cutting is in evidence on galvanized steel sheets. During the summer months and the early part of this fall, price cutting by distributors of these sheets was prevalent, and it was often advantageous for dealers to shop around previous to purchasing. This has been eliminated to a great extent and the following prices are adhered to almost without exception. This state of affairs is due largely to the effect of tremendous orders for galvanized sheets being placed by the Japanese Government with the mills, and they have purchased all the 28, 30, 31 and 32 gauge black and galvanized sheets that Europe can produce up until early next summer, and are

large numbers of employees are working in a limited space, mechanical ventilation is advisable.

The ventilation may be accomplished independent of the heating system. In this case the heating system is designed to take care of the heat losses through the walls, floors, etc., and the ventilation is accomplished by fans which draw fresh air from outside and pass it over to the heated coils and discharge it into the factory at a temperature of 65 deg. Fahr. or so. The foul air may be drawn out by means of a fan or may be passed out through ventilators due to gravity and the slight pressure put on the room by a fan. For simple systems, exhaust fans only are used and they draw in fresh air from openings around the windows and doors.

In factories making textiles and other special lines it is very necessary to use high grade ventilation systems which are arranged to give good ventilation and also to keep the temperature and humidity of the air at certain points which are known to give the best results. Such conditions are necessary to give uniformity of product. These systems have greatly increased in number during recent years and it is evident that they result in much better quality and quantity of product. They should keep a room at, say, 65 per cent, relative humidity and 60 deg. Fahr. regardless of the conditions outside. This is accomplished by means of a fan, heating and cooling coils and an air washer. The air drawn from outside is heated to, say, 42 deg. Fahr. by being passed through coils which have automatic control. It then passes through a series of fine water sprays which clean it and after these it hits baffle plates which remove the surplus moisture and it is then passed through other heating coils which heat it to a predetermined temperature, after which it enters the fan and is blown through ducts into the room to be cooled. It is evident that as the air passes through the washer it becomes saturated with moisture. If the temperature of the spray chamber

is still placing large orders in America. To date orders for 120,000 tons of sheets have been placed in the U. S., and it is understood that another 80,000 tons are about to be placed, which will keep most of the mills making these lines busy up until February at least. Some Canadian metal interests believe that sheets will advance 25 cents by next spring, while others think that the advance will be made around the first of the year.

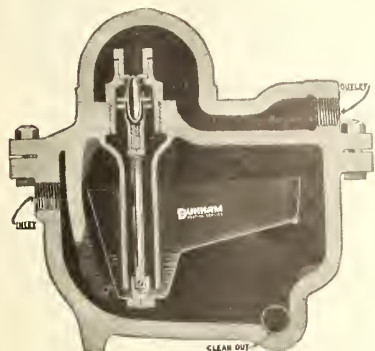
Some Canadian importers of galvanized sheets intimate that there is a possibility of a cancellation of the 5 per cent. preferential discount which is allowed to them over prices offered to distributors in U.S., as this generally is the case when a shortage of sheets is noticeable.

is 42 deg. Fahr., for example, the air is saturated at 42 deg. Fahr. if the washer is 100 per cent. efficient, and when it passes out of the washer it goes to the coils where it is heated to say 80 deg. Fahr. and being unable to obtain further moisture, it is probably only 75 per cent. saturated and, therefore, the relative humidity is 75 per cent. It is evident that by raising the temperature of the spray water, the air may be saturated at any temperature we desire and, therefore, the relative humidity on entering the room may be arranged to suit. Where it is desired to reduce the humidity of the air, the spray water is cooled by refrigeration so that when the outside air strikes the cooled spray it is cooled and deposits some of its moisture in the washer.

Cooling devices are used, for example, in the summer in factories making chocolate which is best worked at about 60 deg. Fahr. the year around and 50 to 60 per cent. relative humidity. Automatic devices are now in use for regulating the humidity and temperature. Of course, when the treated air coming into the room mixes with the air already in the room its condition will be taken into consideration when setting the apparatus. Where special systems of this kind are installed, it is usual to recirculate a great part of the air and only bring in such quantities of outside air as are advisable, depending on the outside conditions.

A recent example of this apparatus outside of ordinary ventilation of air washers is in the dry air system for blast furnaces in steel mills. The outside air in this case is cooled down till it deposits the greater part of its moisture and is then blown into the stoves to be heated. The saving, of course, is due to the fact that under ordinary conditions a large amount of heat is used to heat the water vapor and this is all wasted. Mr. Gayley, the inventor, or first user of this system, gives figures showing a large increase in production of iron at a considerable saving in fuel.

Dunham High Pressure Bucket Trap—Type No. 80 Quick acting—Powerful—Accessible!



There's nothing "draggy" about the action of this trap. The shape of the Dunham bucket and a short-coupled leverage obtain unusual power and speed. When the bucket is down and the trap is discharging the inclined bottom stands practically in a horizontal position. As the water is forced out through the discharge tube from the bucket, and the bucket begins to rise from the buoyancy of the water surrounding it, all of the water on the bucket "shelf" is suddenly poured over into the water seal. As a result, the movement of the bucket is greatly accelerated in its closing action.

This is a strong, simply constructed trap for removing condensate from fixtures, steam lines, separators, laundry equipment, heaters, vulcanizers, dry kilns and other industrial apparatus where high pressure steam is used. It is the speediest and most powerful trap of its size and type made. This is due mainly to the shape of the Dunham bucket, as described under illustration.

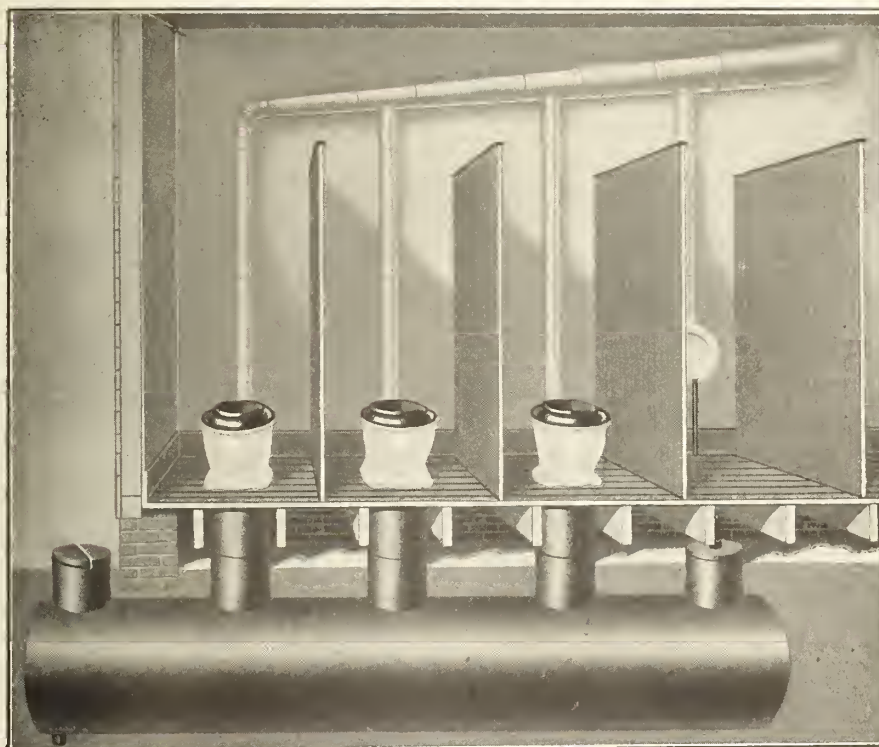
Another big feature is its accessibility. The cap may be removed without disturbing piping connections. This exposes the double-end valve and reversible valve seat which are made of monel metal. These vital working parts may be quickly reversed or replaced. Compare Type 80 with any other trap for operating efficiency and durability.

Write to us to-day for complete information and price list on Dunham Traps and other heating and industrial specialties.

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A. B. Jardine & Co., Hespeler.
W. H. Cunningham & Hill, Ltd., Toronto.
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Empire Mfg. Co., London and Toronto.
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STEAM TRAPS

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STOVES

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STOVES, GAS AND COAL

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SINK PUMPS

Smart Turner Machine Co., Ltd., Hamilton, Ont

SYSTEM—ELECTRIC

Steel Trough & Machine Co., Ltd., Tweed, Ont

SYSTEMS—SCHOOL

Steel Trough & Machine Co., Ltd., Tweed, Ont.

TANKS—GASOLINE

Steel Trough & Machine Co., Ltd., Tweed, Ont.

TANKS—STORAGE

Steel Trough & Machine Co., Ltd., Tweed, Ont.

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H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
Standard Sanitary Mfg. Co., Ltd., Toronto, Hamilton.
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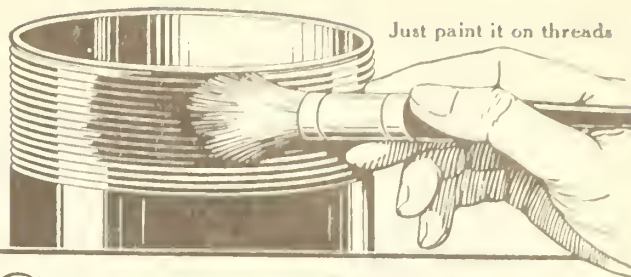
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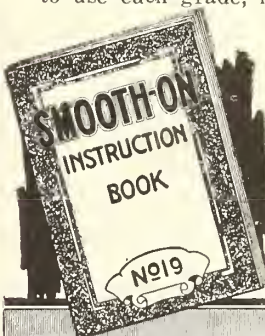
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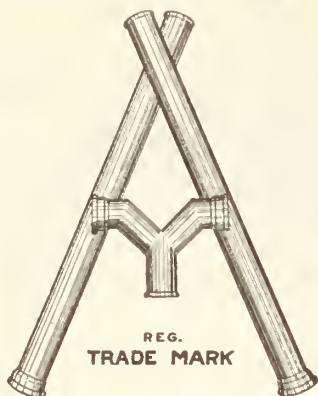
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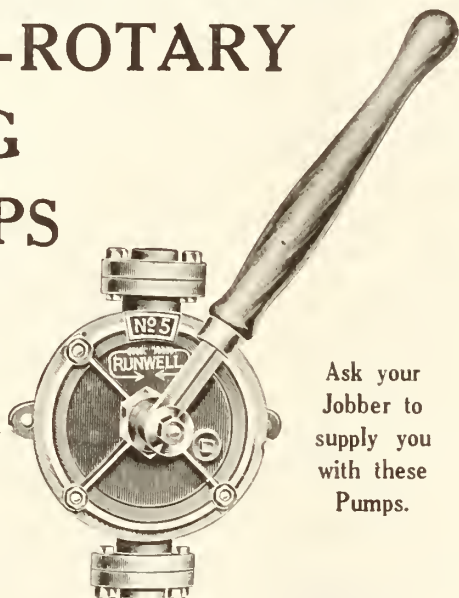
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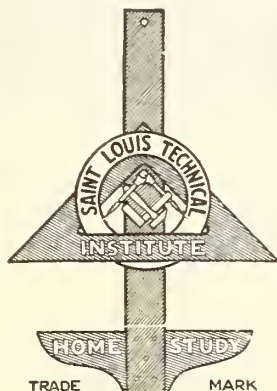
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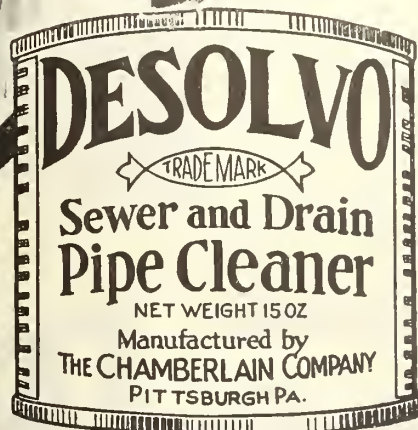
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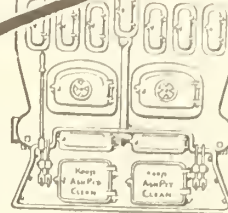
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Burnham Boilers

Let The
Lie Lie

This square
shouldered,
broad chested
Twin is about
71 inches wide
and but slightly
over 80 inches
high.



If a thing isn't so, and you find it out, and go right on letting folks believe it's so, is that a lie?

If it is, then we are letting the lie lie, by not changing the ratings on the Burnham Twin Sectional Boiler.

The ratings are now altogether too low, according to the work the boiler did over and over again during last winter's severest of tests.

But we are not going to jack up the ratings. We prefer to have it do more than we claim it will do.

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Does not require accurate placing of anchor bolts—the ONLY hanger that is adjustable for height and lateral position. Only one bolt per hanger.

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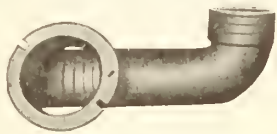
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WANT ADS

If you want a buyer, clerk, salesman, traveler, position, you can reach the best men in the trade through these columns.

If you wish to buy or sell a business, or dispose of overstocks, you can reach a larger number of sanitary engineers through this page than in any other way.

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Tapped Closet Bend

Easier to attach
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Ask your Jobber for C. T. Brand Wrought Pipe

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Atmospheric Steam Heating Systems

Give a noiseless perfect circulation, without the use of air vents or traps on radiators.

No Vacuum Pumps are used. Consequently it saves fuel and costs for maintenance.

Farrfhern Heating will make the work of Contractors more profitable.

It is for buildings of every type and size.

Let us co-operate with you on the next heating prospect. The more difficult it may be, the better we will like it.

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Probably you are starting off on your way to an important job this morning. If you consider it as important as you should, a reliable wrench will not be overlooked as one of your necessities.

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The Wrench with the Steel Frames, Nut Guards, and insertable jaw in handle. Made with Wood Handles in 6", 8", 10", 14" sizes.

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are practically indestructible because they are made of Heavy Malleable Castings, and the joint being Bronze against Bronze, gives the strongest kind of guarantee that the Dart will stay as tight as it is first made when screwed to a pipe line.

The Dart's reputation is based on the opinion of others; ask anyone who has had experience with Dart Unions, regarding their efficiency.

ORDER FROM YOUR JOBBER. There's a variety of styles to fill all requirements.

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Porcelain Enamel Ware

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Beaver Brand Enamelware by its ability to meet the highest demands for service under all conditions, has established itself in the confidence of the public to such an extent that each month witnesses an ever-increasing demand for products of Beaver manufacture.

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250,000 In Use

A quarter of a million Vitro Tanks have been installed by discriminating plumbers for customers who wanted the best.

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What wonder that for month after month Vitro Tanks lead the Canadian market in sales.

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TECK
FLUSH VALVES

PERFECTO
BRASS GOODS

Sanitary Engineer

Plumber and Steamfitter of Canada

Vol. XVII

PUBLICATION OFFICE: TORONTO, DECEMBER 15, 1923

No. 24



Wishing You The Best of The Season

THE Christmas spirit has got us. As the New Year draws nearer we drop the burdens of Business to wish our friends "A very Merry Christmas and a Happy and Prosperous New Year."

We have worked hard, this last year, to make 1923 a banner year by putting into each article of "Emco" manufacture the best in material and manufacturing skill.

The "Emco" guarantee of satisfaction, and the fact that every "Emco" product is tested under hydraulic pressure before leaving the factory, has placed our name second to none in the Dominion among the heating and sanitary engineering trade.

And, as we look back at our 1923 achievements, we are spurred on to greater efforts to make 1924 a still more prosperous year.

Again wishing you the best compliments of the season, "A very Merry Christmas and a 'still' More Prosperous New Year."

Empire Brass Manufacturing Company
Limited

LONDON and TORONTO, CANADA



"Pussyfoot's"

Greetings



Christmas 1923

THE manufacturers of "Pussyfoot" Closet Tanks extend to their many friends in the trade all the best wishes of the season.

We hope that each and every one of you will have the Merriest Christmas ever and we are confident that with hard work and persistent effort, we can—all of us—make 1924 a year of progress and prosperity.

THE CANADA METAL COMPANY
LIMITED

Montreal Hamilton TORONTO Winnipeg Vancouver



SHANKS'

White Glazed Vitreous China Lavatories

THE ALBANY



No. 4686 "ALBANY."
With anti-splash rim and hooded overflow.



No. 4687 "ALBANY."
With plain bowl and open overflow.

Shanks' Vitreous China Lavatories cannot be surpassed for Beauty of Finish, Hardness, and Durability of Glaze. The Body is NON-ABSORBENT, has Great Strength and is NON-CRAZING.

All Shanks' Leg and Pedestal Lavatories are cut for pop-up waste or chain stay, and supplied with fixtures for securing leg or pedestal to top as well as N. P. brass, adjustable wall-stays.

The name "**Shanks**" means the best that British Science can produce. Insist on getting the "best." Shanks' Lavatories are obtainable from your jobber at very reasonable prices. If **your** jobber hasn't a stock he can get prompt delivery for direct import or from emergency stock at Toronto.

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Alcock, Downing & Wright, Limited

162 Water St., Vancouver, B.C.

We Wish You A



Make
Warm
Friends
Everywhere



Warden
Montreal,

Branch Office - 130

Prosperous 1924

FOR over sixty years we have been providing winter comfort for Canadian Homes.

And year by year the name "Warden King" has been synonymous with every advancement in the science of heating.

This courage to pioneer, to experiment, to seek out newer, better designs and methods has been given us by reason of the loyalty and patronage of the Sanitary and Heating Engineers of Canada. The present day prosperity and success of our business is largely the work of your doing. Heartily and sincerely we thank you.

We wish you, one and all, a Merry Christmas and a Happy, Prosperous 1924.



King, Ltd.

Quebec

Prince Street, Toronto





A Christmas Greeting

WITH the closing days of 1923, one looks back on the months that have gone before and counts up his gains and his losses.



With us it has been a very satisfactory year—due largely to the support, loyalty and progressiveness of our good friends the dealers in "Standard" Plumbing Fixtures.

Sincerely we thank you.

To you and to all engaged in the trade we wish a very Merry Christmas and a Happy Prosperous New Year.

Standard Sanitary Mfg. Co. Limited

General Office and Factory,

Royce and Lansdowne Avenues, - Toronto, Ontario

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Montreal Store: 705 McGill Bldg.
Vancouver Store: 860 Cambie St.

Toronto Showroom: 55-59 Richmond St. E.
Winnipeg Showrooms: 145 Market St. E.
Calgary: 354 Eleventh Ave. W.



Pease



A Happy Christmas



HAPPY indeed is the family whose home is heated by a Pease Furnace or Boiler, and happy is the dealer who has, during the past year hooked up with the Pease organization.

In 1924 with our improved facilities for giving prompt deliveries and with a greater variety of heating equipment, we will be able to serve you better than ever before.

To those good friends of ours who sell Pease Heating Equipment—and to those who will, in the New Year, get better acquainted with our products—we extend cordial wishes for a Merry Christmas and a Happy, Prosperous New Year.

PEASE FOUNDRY COMPANY.

R. M. Mearns
Vice-President and
General Manager

Economy Furnaces Economy Boilers Arco Boilers Mogul Boilers



O ALL of those who have added to the comfort, happiness and health of Canadian citizens throughout the year by promoting the installation of better plumbing—to the owners and builders who have planned and erected—to the architects who have co-operated and specified—to the jobbers who have distributed—and above all to each and every one of the hundreds and thousands of plumbers throughout our great country who have conscientiously carried this great work to a glorious consummation—we extend our most sincere wish for

A Very Merry Christmas

AND to all of those who will continue or undertake to promote the improvement of sanitary conditions in Canada during 1924, we add our equally sincere wish for

A Very Happy New Year

FULL of good luck, good cheer, good health, happiness, contentment and success.



DURING the holiday season, with guests coming and going more than at any other time of year, the sanitary appointments of the home show up with especially good or bad effect.

Where the toilet-room includes a Canadian Solid Vitreous "Quietus-Bellemeade" closet combination, with a Canadian Solid Vitreous Lavatory to match, the hostess proudly knows that no fixtures more sanitary or attractive could have been provided, while her guests equally appreciate the almost silent operation of the closet as well as the luxury of the roomy, white, clean lavatory.

The annoyance and chagrin experienced in many homes this Christmas where less desirable fixtures are installed makes the moment opportune to talk replacement. Why not make up a list of prospects and approach them either personally or by mail. Your efforts we feel sure will be well repaid.



CANADIAN POTTERIES

LIMITED

SAINT JOHNS - QUEBEC





CANADIAN POTTERIES
LIMITED
SAINT JOHNS - QUEBEC



Hearty Christmas Greetings

MAY the whole Canadian Plumbing Trade enjoy a cheery, old-fashioned Christmas and may each and every one of you have good health, good luck and good business in 1924

ANTHES FOUNDRY LIMITED

Toronto and Winnipeg

Manufacturers of Cast Iron Soil Pipe and Fittings



SANITARY ENGINEER

PLUMBER AND STEAMFITTER OF CANADA

ESTABLISHED 1907

PUBLISHED TWICE MONTHLY

Vol. XVII. PUBLICATION OFFICE: TORONTO, DECEMBER 15, 1923 No. 24

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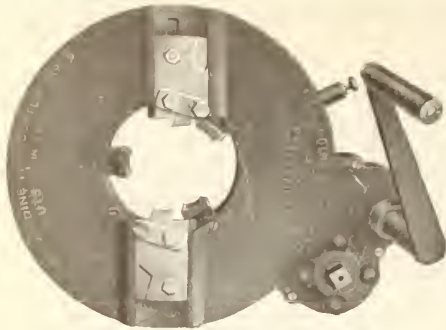
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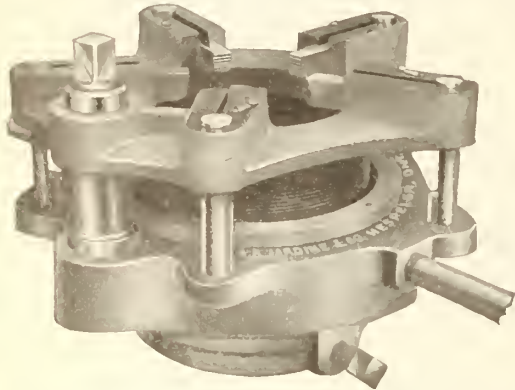
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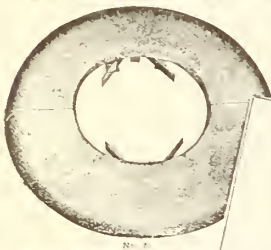
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Ontario

Number of Licensed Plumbers Under Sales Tax Reduced by New Regulations

Special Category of "Contractors" Will Cover Most Small Operators Despite Department's Classification of Plumbers, Steamfitters, and Tinsmiths as Liable to License — Question of When a Retailer is a Manufacturer Again Aggravated

OWING to the apparent difficulty of applying the licensing clause in the new Sales Tax regulations to every plumber, heating engineer and tinsmith doing business over \$10,000 a year, Sanitary Engineer has taken up with the Department of Customs and Excise at Ottawa the question of status of these classes of operators under the new act so that the trade will know definitely where they are at under the new regulations.

In a list of 32 retail trades which are not now subject to the licensing clause of the Sales Tax, but which were expected to be after Jan. 1 next, as produced by the Taxation Department, appear the names of plumbers, steamfitters, and tinsmiths. On this basis and from other rulings which have been secured, certain officials of the department gave it as their opinion that these classes of operators would evidently be classed as manufacturers under the new regulations, be compelled to take out licenses and collect and return sales tax on all material involved in transactions with the public. Rulings were given concerning tax on labor charges, also as to whether fixtures sold in the ordinary retail way would be included in the \$10,000 of business which would establish whether a plumber was to be licensed or not.

Official Advice

In view, however, of the fact that one of the prime advantages of the new act has been that the number of firms from which sales tax is to be collected is greatly decreased, it did not appear logical that every plumber, tinsmith and heating engineer doing over \$10,000 business a year should be licensed and compelled to collect sales tax. The matter was taken up with the head of the department at Ottawa, and Sanitary Engineer was officially advised as follows:—

"No definite instructions have been issued as yet with respect to plumbers. It is the old question of when a merchant is a manufacturer and the solution of this point is tying up a definite ruling. It is being found exceedingly hard to determine when a plumber is and is not a manufacturer and therefore for the time being each individual case is to be dealt with on its own merits. It is unlikely, however, that every plumber, heating engineer or tinsmith doing business over \$10,000 a year will be licensed as a manufacturer. He may be doing business over that amount and still be classed as a retailer, but if the department decides that he is carrying on the business of a manufacturer then he comes under the tax."

It will be recalled that a good deal of difficulty was encountered in trying to establish whether a tinsmith was or was not a manufacturer, but finally it was found that very few tinsmiths were licensed under the existing sales tax. One of the judges who heard a test case on the subject contended that a person could only be termed a manufacturer who produces by labor on a large scale. He stated that, in his opinion, any person who does any work or part thereof with his hands, cannot be considered to be a manufacturer. The retailer was not a manufacturer in the general acceptance of the word. Another judge stated: "One who makes and sells in a very small way, or in one of a few instances, should never be called a manufacturer."

In face of this situation, however, all merchant tailors, whether making suits for special order or for general sale, and doing an ordinary retail business, are to be licensed as manufacturers and compelled to collect sales tax. This decision is causing much protest at the present time.

Discussing the matter fully with the head of the Sales Tax division of the Department of Customs in Toronto, Sanitary Engineer learned that it was unlikely that many plumbers, heating engineers or tinsmiths would be licensed and compelled to collect sales tax. In most cases the work done by these trades is merely individual labor on material, and, as the tax only applies on material, it will facilitate matters for everyone to have the material taxed at the time the plumber or tinsmith buys it. The tax will, therefore, be on a smaller sum than if it applied at time of resale by the plumber, but it is the most likely plan to be followed. A special category known as "contractors" is being made in which these trades and electricians and others will be grouped so that they will not be licensed. This will not eliminate everyone engaged in these trades however, for, as pointed out by the department, there may be conditions which would justify the title of manufacturer being applied to some such operators. For instance, there may be some manufacturing and jobbing concerns which also do a contracting business. There may also be tinsmiths working on a large scale who make up various articles of tinware for sale at retail to consumers or to other tradesmen. This class would be differentiated from the tinsmiths who make up eavestrough, conductor pipe, cornices, etc., and use their own product on a contracting basis. The latter would come

(Continued on page 27).

This Year's Inventory Very Important to the Sanitary and Heating Engineers

Rapidly Fluctuating Prices, Introduction of New Sales Tax, and Need for Curtailing Costs on Stock Carried in Shop and Show-room Give Inventory Great Importance—How to Handle Stock-taking This Year

Prepared by Sanitary Engineer, making use of the best practice of numerous operators

EDITOR'S NOTE:—Several factors combine to make this year's inventory a most important undertaking and one surrounded with more difficulties and dangers than is usually the case. The past year has quite held its own among the years of rapidly fluctuating prices since 1915, and now, as the end of the year draws near, merchants are faced with an increase in the Sales Tax which practically amounts to an increase in the cost of most goods, effective from Jan. 1. This, combined with the fact that the Income Tax Department is very insistent upon certain details in statements revealing business profits, makes it necessary for the retail merchant to exercise precautions in doing this work this year. The following article outlines the way in which to best meet the conditions affecting this year's stock-taking operation, being based on the best practice of a group of progressive sanitary and heating engineers and also based on information secured in interviews with Income Tax Department officials:—

A GREAT many price changes have taken place during the past year, and, with the new sales tax regulations coming into effect at the first of the year, many further alterations in prices are to be soon expected. These changes, and the fact that the inventory forms an important part of the records for use of the Income Tax Department, make it essential that the record be accurate and taken on the right basis. Stocktaking entails much hard work, but is simplified if a definite plan is established and strictly adhered to. Once commenced, the job should be pushed right ahead, keeping in mind the fact that delays invite mistakes.

The period which is set aside for inventory taking, whether it be in December or at any other time, is the most important period in the year from the point of view of the proprietor. Results of inventory taking have a great bearing on the policies to be adopted for the following year, and in many cases these results have the effect of changing business practices which were in use

during the previous year. Conditions peculiar to the individual business will, in many cases, determine as to what time of the year is most suitable for taking the inventory. In the majority of cases sanitary and heating engineers favor the end of the calendar year. It is generally found that the period between Christmas and the new year is a very quiet one, making an excellent time to concentrate on counting and weighing up the stock. As far as the Dominion Income Tax is concerned, it does not matter what time of the year the stock is taken, as the clause in these regulations governing this point reads to this effect: "All fiscal periods ending within the calendar year are taxable in the year in which they terminate."

Preparation

About a month prior to the date set for the inventory, the entire stock should be thoroughly gone over, and in all cases where goods are mixed up or not in their proper shelves or bins, care should be taken to sort up and allocate each article to its place. Goods should be piled neatly

together, and stock in drawers and bins assorted and straightened up.

It will be found that at this time an excellent opportunity affords itself to clean out any dirt or dust that has accumulated on the shelves or in the bins during the past year, which operation can be done quickly when bins, etc., are empty as goods are removed to be weighed or counted up.

All tools should be carefully examined and defects repaired and broken parts replaced so that a proper estimate can be placed on them when they are listed. This end of business is one of the most important features of the inventory, as will be realized when each tool and part of the shop equipment is valued and added up and a total value of shop equipment is obtained.

Elaborate inventory equipment can be used, but this is not necessary, and often adds to confusion. Some of the most successful operators have tried almost every conceivable short cut and have come back to simple equipment, which includes a supply of well-selected inven-

SHEET NO.....

INVENTORY

FOLIO.....

MONTH

YEAR

DEPARTMENT

LOCATION

CALLED BY

ENTERED BY

PRICED BY

EXTENDED BY

EXAMINED BY

CHECK	QUANTITY	DESCRIPTION	NUMBER OR WEIGHT	PRICE	EXTENSION
		AMOUNT FORWARD			

[illegible]

The above is a sample of a practical form of inventory sheet. Note the separate columns for units, depreciation and special marks or memos. The use of this form is fully outlined in the article appearing herewith.

tory sheets, fitting a binder, with at least a column provided for each of the following headings: quantity, article, description, size, number, cost price, cost extension, and a memo or extra column for special marks or particulars. A supply of slips for tabulating each shelf or bin is also necessary. It is suggested that a different colored slip or card be used for each year, in case an old slip belonging to a former inventory should turn up, thus avoiding a mistake.

Divide Into Departments

Many of the most successful operators divide their inventory into departments or sections and use separate sets of pages for each class or department of goods irrespective of their order or location in respect to other departments. These divisions of the inventory should be made under the following twelve headings: Brass Goods; Closets; Enamelware; Iron Pipe; Cast Fittings; Malleable Fittings; Nipples; Lead Goods; Sundries; Show Room; Tools and Equipment. The scrap materials collected during the year that are on hand at the end of the year should be classed as items under the heading of sundries, as well as any other odd items or lines that cannot be classed under the other headings.

All short lengths of pipe should be collected and sorted into racks with approximate lengths together, so that they are accessible at a moment's notice. This will save time by eliminating hunting the required lengths from piles in which all lengths are mixed. This will do away with the necessity of cutting short lengths from long stock, and will be found to be an economical measure.

The forms illustrated are recommended and have been successfully used by operators in the inventory binder, and on which the goods are entered when called from the slips or cards placed in each bin.

Number the Departments

A plan followed out by many dealers each year, consists of numbering off each section of drawers or shelving. Beginning with No. 1 at the front or back of the store or stockroom on one side, they go right to the other end with these large

sized number labels, then they do the other side in the same manner, each show case, corner and rack containing stock also being labelled with a number. These stock location numbers should be used in connection with each entry on the stock sheet, as it often happens that it is necessary to check back on quantities or prices. This plan enables one to locate the item at once. It might be mentioned here that it is necessary to head each sheet with the floor number, such as basement, ground or first floor, etc., where the stock is kept on more than one floor, depending on the size of the shop.

The question of care and accuracy cannot be stressed too much. Tradesmen should be impressed with the necessity for plain writing and complete descriptions, thus avoiding having to go back over stock for a missing number, which more than doubles the work.

Sales During Inventory

Stock items should be entered on the colored slips or cards immediately they are counted, using a line for each item. Sufficient space should be left at one side for an extra column for special marks, and which may be used when the quantities are changed. This will occur in the event of a sale being made prior to the day set for closing the inventory when the calling in, and writing in, should start. It might be mentioned that the term "sale" applies to goods sold at

SUBDIVISIONS OF STOCK FOR INVENTORY

1. Brass Goods.
2. Closets.
3. Enamelware.
4. Iron Pipe.
5. Cast Fittings.
6. Malleable Fittings.
7. Nipples.
8. Lead Goods.
9. Sundries.
10. Showroom.
11. Tools and Equipment.

once or used on jobs or contracts which are in reality sales and are termed so in the inventory proceedings. The stock is not actually "taken" in the true sense of the word until it is entered on the official inventory sheet. When sales are made after the date set for the inventory it should be thoroughly understood that each item must be listed on the charge sheet or cash slip, according to whether it has been recorded in the inventory or not. Perhaps the simplest way to mark these items is to mark "taken" items T and items which have not yet been included N T. Some responsible party should go over every charge or sales sheet at the end of each day's sales and check up on employees who have omitted to mark each item either T or N T.

If the writing in of the inventory should start before the date set for the closing of the year, which often is the case, the marking of the sales slips must start also. Up to inventory day, a record is kept each day of the total costs of all goods sold out of items marked T, or taken, and this amount is deducted from the inventory total. After inventory day, a record is kept each day of total costs of goods of items marked NT, or not taken, and this amount is added to the inventory total. The reason for marking each item T or NT when only part of them are used in the records, as described in the foregoing, is simple. The rule is to have each item marked so it will not be overlooked in any way. If only the inventoried goods were marked before the inventory day, some one might be guilty of an oversight and it would be assumed that the item had not been inventoried. The same thing is true of "Not Taken" goods after inventory day.

Calling In the Stock

After closing time is, without a doubt, the best time to call in the stock. The staff should be divided into pairs, one man calling off the goods on the slips and at the same time checking the original count by the actual stock. The other man writes the description clearly on the inventory sheet, calling back the quantities, weights, sizes and numbers as a double check against errors.

An important feature of this part of

(Continued on page 38)

Joint Efforts Producing Better Grade of Pipe Fittings

Combined Efforts of Mechanical Engineers and Manufacturers of Fittings Bringing About Standard Weights and Specifications to Protect the Plumber—Processes of Manufacture, Inspection, and Distribution Outlined

Address by CLIFFORD G. SHERMAN, Sales Manager, The Grinnell Co. of Canada, Ltd., Toronto, before Hamilton Sanitary Engineers' Social Club

A VERY interesting talk on the production of pipe fittings was given at the last regular meeting of the Hamilton Sanitary Engineers' Social Club by Clifford G. Sherman, sales manager, The Grinnell Co. of Canada, Ltd. After the usual dinner, which was interspersed with group songs, special solos and other entertaining features, the speaker of the evening was introduced by Charles Marks of Hamilton.

In introducing his talk Mr. Sherman made it clear that the manufacturers of fittings were doing all in their power to improve the quality of their product. Improvements were constantly being made, though this advancement cast no discredit upon the quality and standards which have been upheld in the past.

He pointed out that the American Society of Mechanical Engineers along with the manufacturers of fittings had got together in the United States to decide upon standard weights and specifications for fittings. At the time these specifications were agreed upon, his company was making the old type of fitting. Changes were subsequently made but after one and one-half years marketing it was found that more complaints were being received than Grinnell Company believed should be made against a strictly high-grade fitting. It was decided that the fitting was a little too light for Canadian and U. S. trade and \$250,000 was spent making over the patterns. Samples were shown of the heavier fittings which resulted.

"I am not apologizing for the old one," said Mr. Sherman, "but it did not prove to be our conception of what a commercially perfect fitting should be." Mr. Sherman continued as follows:

There has been some doubt in my mind as to whether the manufacture of fittings discussed as an abstract subject, would prove interesting, unless you have an opportunity of seeing the actual operations at the same time.

Let's begin with the Iron:

Metal Composition

The physical composition of Grinnell grey iron castings is approximately as follows:

- 55 per cent. pig iron.
- 25 per cent. sprue—or in other words, our own foundry scrap.
- 15 per cent. purchased iron scrap.
- 5 per cent. steel scrap.

Pig Iron

The pig iron is the best grade obtainable, particular attention being given to correct chemical composition.

The steel scrap is put in to add strength to the final metal fabric; too

much steel scrap makes a fitting hard and brittle, but a little steel in the mixture adds strength as well as improving the fine texture of the metal.

Melting Temperatures

In melting the mixture, experiment and experience have taught us the tem-

The next meeting of the Hamilton Sanitary Engineers' Social Club will be in the form of a joint social gathering with the craft from Galt and the members of the Live Wire Club from Toronto. The latter members will provide the speaker and entertainment and the gathering will be held in Hamilton.

perature which gives the best and most uniform results, and very careful attention is paid to this important item.

During the pouring process, three test bars are made each day, one taken from the first part of the heat, one during the middle of the heat, and the third at the end of the heat. These test bars are carefully tested to A. F. A. standards and should they fail to test to

standard the melt or that part of the melt is scrapped.

Borings for Analysis

Further than this, borings are taken from each test bar and two separate chemical analyses are made from each melt, this being done to insure uniform quality.

Our pattern equipment, molding machinery and methods have been worked out having in view the absolute minimum of defections and vibration troubles. Our patterns are plate type, cast iron and machined true. The core boxes are also cast iron and machined. The machining of these patterns and core boxes is a mighty difficult and expensive job, but it helps insure a smooth inside and outside surface on the finished casting.

The molding machinery is all mechanically operated. The sand is introduced into the molds by automatic chutes and packed by jolt squeezer machines. These machines are a particularly essential part of the work because they permit an even distribution of sand pressure throughout the entire mold. This in turn largely eliminates surface irregularities and to a less extent sand holes.

As far as possible cores are machine made largely because a machine core is the least likely to be irregular or pitted.

Molding Sand

We pay considerable attention to molding sand. Foundry practice which allows the re-use to any great extent of dead sand usually produces castings with too great a percentage of sand holes. We re-mix used sand only to the point where such mixture produces a close grain casting with a uniform surface.

Pouring and Cranes

The pouring process is largely mechanical: small hand operated cranes are provided for the molders with the pouring ladles suspended and the molten iron is brought to them by larger cranes and ladles.

Rattling and Inspection

The finished castings are rattled when cool or cold. They then go to the sorting and inspection benches where every fitting is individually inspected for casting defects, before going to the machine shop. Take an average day's run of many thousand castings and just believe me when I say that this is no small task.

Before leaving this discussion on strictly foundry work I want to point out that for every ton of good castings it is necessary to melt and pour at least



CLIFFORD SHERMAN,
Sales manager, the Grinnell Co., Ltd.,
Toronto, who addressed the Hamilton
Sanitary Engineers' Social Club.

a ton and a half of metal. The percentage of scrap is largely sprue and to a lesser extent bad castings.

Machine Shop

The machine shop operation is one of the most interesting parts of our work, and it is also the place where the fitting in the making receives very careful attention.

The tapping machines are all automatic and thread one, two or three threads at the same time and in the same operation. The spindles are set on a circular dial plate at required angles usually either 90 degrees or 45 degrees. There is no possibility whatever of one thread in a fitting not being at the correct angle to the other threads of the fitting when all the threads are made at one time. And right here I want to explain what constitutes a crooked thread in a fitting.

Crooked Threads

Each fitting has its own chuck or set of jaws. This is made in two pieces and machined on the outside to fit the machine holder and on the inside to fit the exact outside surface of the fitting. When these chucks are set in the tapping machine the spindles are exactly lined up in relation to the chuck itself. The fitting is then placed in one half of the chuck and the other half brought up tight by compressed air and locked rigid by a lever arm. The spindle lever is then thrown and the taps enter and thread and then all release at the right depth and the same moment.

Fitting in Chuck

Now if all these operations are perfect the result is a perfect fitting. But suppose a fitting has a slight surface irregularity or a tiny wart that has not been noticed and ground off or that a little piece of metal has found its way onto the inner surface of the chuck; then when the fitting is clamped tight in the chuck it may not be in exact alignment with the spindles; or the taps themselves at the point of entry may ever so slightly force the fitting into a different position. The result is the threads are correctly formed in relation to themselves, but in relation to the fitting as a whole, one or more of the threads may be slightly out of line.

What is done to overcome this? The most rigid inspections are constantly maintained at the machines themselves. One fitting in about every twenty-four is actually gauged and tested as to alignment. If an inspector finds the least thing wrong he orders the spindle stopped and calls the machine setter. But sometimes a few get through and it is nearly impossible to detect the defect especially if the thread is only out one or two degrees.

I have brought out the cause of crooked threading to show how extremely difficult it is to always overcome it; and perhaps the next time one of you run against one and cuss you will remember that we are cussing every hour of every working day in the attempt to avoid them.

Hand Threading Often Out

Please don't get the impression that it is always the fitting that is out either; it is a lot easier to cut a thread on a piece of pipe by hand than that is a few degrees out of line than it is to tap a fitting a few degrees out by machinery.



FRANK LANG

Secretary of the Hamilton Sanitary Engineers' Social Club, who does much to enliven the series of meetings held by that organization.

The thread gauge and depth is another matter that receives very close attention. When a spindle is set up for a fitting the first twelve fittings of the run are each gauged separately on each outlet. If the adjustment is not perfect at the first fitting twelve fittings are gauged after it is made perfect.

Gauging and Gauge Limits

We are allowed a thread either way of perfect gauging under standard practice; but we have elected to scrap all fittings that are more than a quarter turn on the tight side and more than three-quarters of a turn on the loose side of perfect gauging. Out of the million fittings in our bins you would find it mighty hard to find a thread that does not gauge within these limits.

Fittings Wash or Bath

The last operation of importance is the fittings wash or bath. We tap all

fittings in oil because we believe this to be the best practice but necessarily much attention must be paid to cleaning.

From the machine shop floor the fittings are dumped through a chute to a moving carrier which discharges into the mouth of a rotating cylinder, immersed at its low end in a cleaning liquid which is kept at the boiling point. The inside of the cylinder is fitted with a continuous spiral baffle which gradually takes the fittings through its length and discharges them at its upper end on an endless belt. When the fittings come out they are clean and wet but their absorbed heat almost instantly dries them.

Final Inspection

The moving belt discharges its load into the final inspection bins. In the final inspection every fitting and every thread in every fitting is examined. In this inspection sand holes and casting defects are again looked for as well as rough or broken or chattering threads. The larger fittings are all rapped with a hammer for cracks or broken castings. The fittings are distributed in steel casks and the inspector can usually detect a cracked fitting when he drops it into the cask.

Storage or Stock Keeping

I think it might interest you to know how we keep up stock. We have kept an accurate daily record of every fitting leaving the plant for the last seven or eight years. These disbursements have been averaged over a series of the big months during this time, and our minimum stock is based on two and three big months' supply on fast running sizes and nine months' to a year's supply on slow moving sizes. It is the stockman's duty to order on the foundry before the stock on any size gets to its minimum count.

President C. F. Rogers thanked Mr. Sherman on behalf of the club for his splendid address and the invitation which had been extended for a visit to be paid to the Grinnell Co. plant in Toronto. Mr. Rogers thought such an inspection might be arranged next May or June.

Gordon Stewart presented a splendid prize to the member who composed the most interesting meal from special menus which were distributed.

NEW HEATING PLANT IN HOSPITAL

Chatham, N. B.—A new heating plant has been installed this fall by the Sisters of the Hotel Dieu. By means of this plant, three buildings—the convent proper, St. Michael's Academy, and the Hotel Dieu—are heated. Steam is also secured for the operation of the laundry.

CONVENTION STILL IN DOUBT

Hamilton, Ont.—The question of whether the International Association of Plumbers and Steamfitters will hold a convention next year will be decided by a referendum of the membership. The last convention was held in 1921, for which 50,000 journeymen paid an assessment of \$5 each. Most of the local journeymen, it is stated, are opposed to a convention next year, owing to the unsettled industrial conditions.

HAMILTON S. E. S. DINNER SCHEDULE

The Sanitary Engineers' Social Club of Hamilton, the account of whose meeting will be found in this issue, have arranged an interesting program of dinner meetings for the coming months, to which they are extending a cordial invitation to anyone connected with the plumbing industry. The dates of the dinners, which are held in the Arcade Dining Hall from 6.15 to 8 p.m., are as follows:—

December 19,
January 16,
February 13,
March 12,
March 26,
April 9,
April 23.

Sales Promotion Plans for Small Plumbing Operators in Large Centres

Value of Select Lists of Prospects and Sending of Letters, Where Operators are Unable to Make Economical Use of Other Forms of Advertising, is Outlined by Speaker at Meeting of Toronto Craft

AT THE regular monthly dinner of the Live Wire Club, a recently organized group of plumbing and heating engineers in Toronto, the chief address was delivered by Russell T. Kelley, advertising counsel, of Hamilton. On the occasions when such splendid addresses are delivered it is unfortunate there is not a bigger turnout of the trade, there being only approximately forty sanitary and heating engineers in attendance at this gathering.

"We are all Canadians," said Mr. Kelley, "and are all interested in our country. Only a short while ago I had been giving a short talk on a somewhat similar subject when a question was put to me—a question that is occupying a good bit of attention these days. It was 'How are we to keep our young men in Canada?' From a Canadian standpoint we have lots to be proud and optimistic about but here is a serious problem that we should give serious thought.

"The question set me thinking and I can only offer one suggestion. That is by the buying of goods that are made in Canada. Only a few days ago I read a page advertisement in a Toronto paper, in which an American truck company listed, not the Canadian users of their trucks, but the Canadian firms and corporations owning and operating fleets of their trucks. There is no reason why those trucks should not have been made in Canada. We have several truck companies here in Canada that could have made these trucks and it would have been of assistance in the stabilization of the country.

Advocated Buying Canadian Goods

"If we men here were to take and form a circle and start to pull, each one of us forming a link and each realizing our own individual responsibility, we could do much. Recently, I was speaking on this same point, to a group or advertising men,—the one class of men whom you would expect, even above others, to patronize home industry—and I asked the men to look at the bands in their hats. The surprising result was that only five per cent. of the hats were made in Canada, although we have a number of manufacturers of first-class hats right here in Ontario. The same thing applies all through. Get behind the idea of buying goods made in Canada. This is my only plan for keeping

"I believe that no manufacturer can get along without using his trade paper for placing his goods before his prospective customers," said Russell T. Kelley, Hamilton advertising specialist, who added: "I also believe that no retailer can get along without reading his trade paper every month to keep in touch with the latest developments in his trade."

our young men here. Give them employment and you will not lose them."

Turning from this phase of Canada's position, Mr. Kelley made reference to the question asked by Roger Babson, during the latter's visit to Toronto. Babson was asked what was in store for Canada during the next twelve months, so far as prosperity was concerned. To this he replied by asking what percentage of Canada's population were engaged in farming.

"Of course, his reason for this question is self-evident," said Mr. Kelley,



RUSSELL T. KELLEY

Hamilton advertising specialist who was the chief speaker at the last meeting of the Live Wire Club in Toronto.

"for just as our farmers are successful, so will the rest of the country be successful, in this country where 50 per cent. of our population are engaged in agricultural pursuits. And we people of the cities and towns do not pay enough attention to this factor of our national prosperity.

"For example, there are two things in which you men can use your influence in the interests of general prosperity through the prosperity of the farmer. They are the encouragement of better farming and co-operative marketing."

Mr. Kelley then related a number of incidents where tests had been made, showing that the non-productive animals and fowl kept in large numbers in the herds and flocks of the country were a loss to the farmer. He also pointed out the loss through the lack of co-operation in marketing, closing this part of his talk with the statement that Canada stands to-day on the threshold of a wonderful development, and urging every man to do his share in helping bring it to pass.

Four Types of Advertising

Coming to advertising, Mr. Kelley explained briefly the divisions in the various forms of advertising, saying that billboard and street car advertising were known as publicity advertising and were useful for breaking down sales resistance, though not creating any desire to buy. Direct-by-mail advertising and advertising in publications, on the other hand, were creative advertising forms because they not only helped to break down sales resistance but helped create desire.

"When an advertiser advertises in his trade paper, he creates a real demand for his goods on the part of the reader," asserted Mr. Kelley. "I believe that no manufacturer can get along without using his trade paper for placing his goods directly before his prospective customers. I also believe that no retailer can get along without reading his trade paper to keep in touch with the latest developments in the trade. In the course of the advertising business, many trade papers dealing with various trades come into my office and I read them all with interest.

"So, to the manufacturer I repeat that he advertise in his trade papers. To the jobber, I would like to say that each month the manufacturers are send-

(Continued on page 21)

Two Easily Arranged Displays Which Will Sell Equipment This Christmas

WINDOW display No. 127 impressively puts before the eyes of the public that good circulation means economy of fuel for the heating plant; that it will pay to investigate the subject of good appliances to promote good circulation.

The back and sides of the window are draped with dark cloth hanging from a wire. This should be high enough to cut off all view of the store. Drapery at the top of this, for a finish, will improve the appearance.

The ornamental background behind the radiator is two pieces of wall board, shaped alike and painted a light color. The two pieces are nailed on a wooden strip up the centre. Place this in the rear centre of the window.

In front of the background place a pedestal about 18 inches high, for the radiator; and, in front of that again, a pedestal about five inches high, for the gas plate and tea-kettle.

Place pedestals with sloping tops about 18 inches high, one at each side at front of window; tops covered with black cloth. Tack gray cloth around the front and side edges of the black tops, and drape to the floor as in picture. Cover the floor and other pedestals with the same kind of cloth, allowed to fall into natural folds.

Show the radiator equipped, as if in actual use, with supply valve and trap. Gas plate under teakettle should also appear the same. From spout of kettle to a nipple in supply valve, run a length of rubber hose. On sloping tops of pedestals at sides of window, wire samples of the air valves and traps which you sell.

The cards read: "Good Air Valves Save Their Cost In A Hurry. Please ask us How and Why"—"Efficient Traps Will End Many Heating Troubles. Let us explain their Economy."

Window Display No. 128 uses a complete, modern bathroom, to drive home the fact that modern fixtures or a new bath room would be appreciated as Christmas gifts.

The rear and side walls are beaver board, with tile effect up to the usual height, and plain above, painted appropriately. The white and black tile floor is made of 6 in. x 6 in. pieces of beaver board.

Arrange an up-to-date bath room, including built-in tub, built-in shower, pedestal lavatory with combination faucet, built-in medicine cabinet above lavatory, high grade closet with vitreous tank, and a full line of small fixtures to complete the outfit.

Hang a bath robe, towels, and other

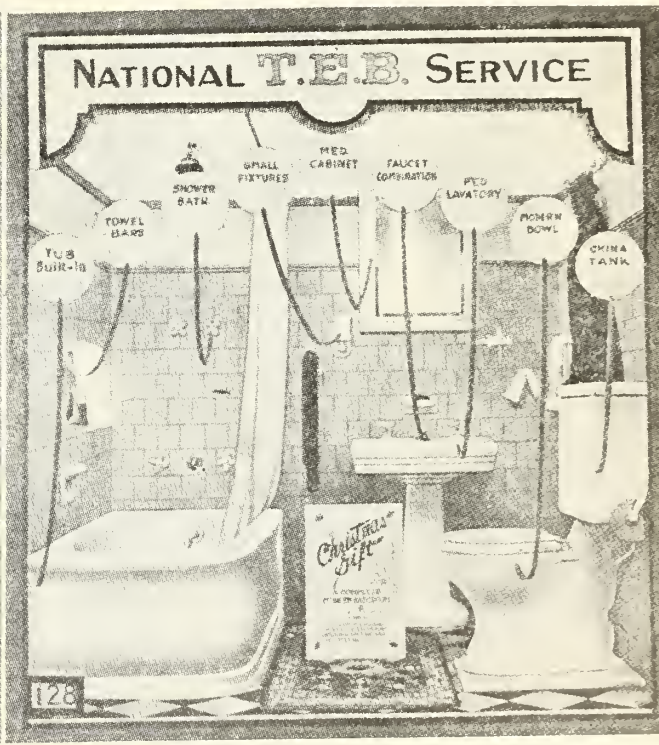
articles in their place to add life to the display.

The circulation signs calling attention to details are pasted on the inside of the window glass in a semi-circle, as shown. Before pasting to glass, paste pointed ribbons on the face of the circular signs and drape each ribbon to the article the sign represents.

The circular signs read as follows:

"Tub Built-in—No dirt beneath or back of it."; "Towel Bars—No Torn Rusty Towels."; "Shower Bath—Finish in Clean Water."; "Small Fixtures—Complete Comfort and Convenience."; "Medicine Cabinet—Convenient and Safe."; "Faucet Combination—Wash in Running Water."; "Pedestal Lavatory—Attractive, Easy to Clean."; "Modern Bowl—Sanitary, Quiet."; "China Tank—No Leaks—Less Trouble." The Large sign reads: "A Christmas Gift of Lifetime Usefulness—A Complete Modern Bath Room. This Entire Outfit, only &..... This display shows many inexpensive things that any housewife would appreciate for Christmas."

Asbestos exports for the year ending October 31 amounted to \$8,432,725, more than \$2,000,000 more than in the previous twelve-month period, when the total reached was \$6,204,514.



Heating and Ventilating Department

Working Out a Problem in Application of Group Heating to Buildings

Have Not Come Very Far in Perfecting Heating Facilities—Study of Plant Designed to Heat Two Residential Blocks

By H. C. KIMBROUGH, Secretary American District Steam Co.

THERE is nothing so essential to "Life, Liberty and the Pursuit of Happiness" as a tranquil mind and creature comforts. Now the very beginning and foundation of our physical well-being is and always has been in the temperate zone, heat, and the degree of ease with which this prime necessity is supplied to mankind becomes the measure of his comfort and tranquility.

But we have not come very far in developing the manner, means or methods of securing this essential, have we, when we recall the vivid picture of the Indian, sitting around a fire built in the centre of his primitive tepee, the flap of which is opened to permit the smoke to go upward, the while he plans moving on to his next temporary residence, or promotes excuses for more war paint. And do you know, it is barely possible that smoke in the eyes has had much to do with engendering hatred, and bloody battles thereafter, all of which we charged to savagery or general blood thirstiness, while as a matter of fact it may have been violent reaction to uncomfortable heating methods, then as now.

Later on, we had our thrill over the picture of the soldier, warming his back and his face at a fire on the ground. And planning more battles;—again suggesting idea that war will not cease so long as we continue our antiquated methods of heating. A heat complex, then, as our collegiate person puts it. You have had a few domestic engagements yourself with wife, man or maid servant about the heating of the premises, because of the dust, dirt and attendant annoyance, unless perchance you have had the good fortune to have heat at your disposal via the valve in the basement, from a central steam plant.

The point of the statement, that we have not come very far in our manner and method of heating, is that the greater percentage of the world population is still "backing up to the fire," or giving loud cheers over the fact that a large base burner has been perfected, one which will require coal, with resultant ashes all over the house. The cheering grows louder when the base burner is ousted and into the cellar is

placed the last word in a boiler,—the point of difference being that when the coal is poured into the stove, in the front room of the house, you can see the ashes go about the room, finding such place of lodgment as to cause the greatest amount of work for the woman of the house, howbeit, the man left a fine fire in the stove, likewise a fine mess all over the premises. While in the case of the furnace or boiler in the basement, the designing engineers—let us call them designing and not crafty!—have accomplished one highly astute thing, i. e., the dirt sifts up through the floor, casements, etc., but you do not see it, so everything is all right—until the announcement is made that "we will just have to clean house," which includes washing curtains, re-decorating everything, restoring pictures to first color and recovering that which was lost or covered up, due to the continuing primitive methods of heating.

Again I repeat, we have not come very far in our methods of heating, and it may be interesting to work out a single problem of the application of "Group Heating of Buildings," which is the subject suggested.

Block Heating Defined

The subject of group or block heating, and the application of the principles of community or group heating in cities large and small, have led to a desire to ascertain the smallest divisible unit of

operation which can be successful commercially. For this purpose a detailed investigation of the engineering and commercial factors was promulgated, and I am indebted to Walter J. Kline, of the American District Steam Company, for his engineering study of this very interesting problem of group, or community heating.

Study of Plant Designed to Serve Two Residential Blocks

The chosen field for observation included two well-built residential blocks in a city. In this report were discussed all of the items involved in the inception, organization, design, construction and operation of a district heating proposition, confined within the limits of a community or block plan.

The most important of these items were:

- Proper selection of block or district.
- Volume of space to be heated.
- Amount of heat required based upon recorded data for similar latitude.
- Design and cost of power boiler plant.
- Discussion of return system and cost.
- Method of operation, meters, etc.
- Cost of operation.
- Fixed, depreciation, and maintenance charges.
- Revenue to be paid by members of the community.
- Surplus to be paid to participating shareholders.

Conclusions Based on Original Study

The original study included a number of items which have been checked and revised as a result of conference and discussions, as well as a review and checking by other engineers and individuals who were interested.

- (1) By running a single steam main with long services, instead of a

(Continued on Page 23)

INVESTMENT AND OPERATION

Cost of 300 H.P. boiler plant and stack	\$36,000.00
Cost of steam distribution system (including trenching)	38,000.00
Cost of meters and valves	3,750.00
Total cost of construction	\$77,750.00
Cost of coal—\$6.00 per ton	\$19,800.00
Cost of teaming coal and ashes	3,300.00
Depreciation, maintenance, insurance and taxes,—(8%)	6,210.00
Maintenance, boilers, etc., \$2.00 per H.P.	600.00
Cost of water	500.00
2 firemen—8 months	\$2,240.00
1 chief—12 months	1,800.00
1 meter man and clerk	800.00
Miscellaneous expenses	250.00
Total operating, fixed and labor charges	\$35,510.00
Income from 38,090,500 lbs. of steam if sold at sliding scale of rates, approximately \$1.31 per thousand pounds (coal \$6.50 teamed to power plant) total sales	\$49,898.00
Operating charges, forward	35,510.00
Surplus over operating	\$14,388.00
Percentage on investment, (\$77,750.00) 18.5%.	

Getting Your Share of the Holiday Business Needs Careful Planning

Sanitary and Heating Engineer Has Plenty of Goods Suitable for Gift Purposes if He Will Take Trouble to Make Public Realize the Fact—Health and Durability Provide Two Good Sales Points

THERE is no denying the fact that the holiday gift season is the most promising one in the whole year for everything in the way of retail merchandising. Everyone knows that each day thousands of people are deliberating every day as to what they shall buy. However, it remains to the individual dealer and firm to see that there is more than a promise of business—is up to each one to assure the diversion of a portion of this business into channels of his own liking.

In no case is this more true than in the instance of the sanitary and heating engineer. People have not been in the habit of buying such goods as form the stock in trade of these artisans for Christmas giving, and it remains for the engineer that is going to reap his share of the gift season harvest to sow along educational lines so far as the public is concerned.

The industry produces scores of moderate priced and attractive products which are entirely suitable for Christmas gifts and the plumber should need no argument nor persuasion to convince himself of the value of showrooms and display windows during the season. His own personal experience will tell him of just what occurs in both the minds and the pocketbooks of practically every man and woman in the holiday period.

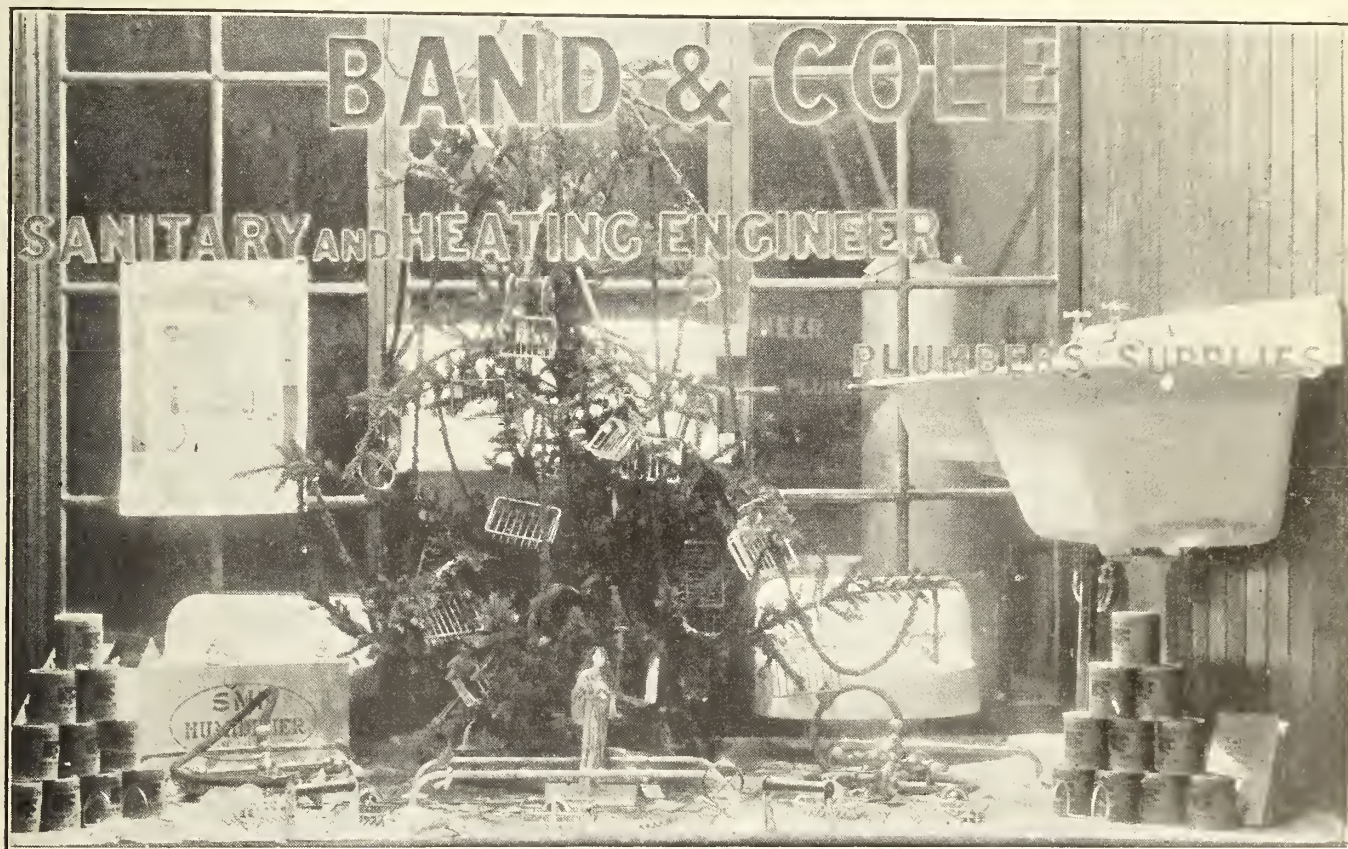
The assortment of plumbing and heating offerings can include separate items such as the modern combination sink faucet, with or without the various improvements, such as soap dishes and sprays. In the bathroom accessories line, such goods as towel bars, showers, mirrors, heaters, medicine cabinets, tumbler holders, scales, soap dishes and tooth brush holders might be mentioned as particularly good ones, with a fair range of prices, all well within the purse

of the person not wishing to spend any overly large sum.

Then there are the larger gifts, among which might be included heating improvements, washing machines, water heaters, laundry tubs and the like. Such gifts will not only give a great amount of pleasure to the recipients, but are useful gifts of long life, beneficial in most cases to the health of the entire family.

In arranging the Christmas season displays, the general custom of the Christmas season should be followed, this including certain colorings like green and red and something of the effect of frost or snow. A neat window can be made up without difficulty using such a decorative scheme, and a point that should not be forgotten is that a seasonable message, in the form of a neat-

(Continued on Page 28)



The introduction of the Christmas atmosphere into the window trims at this season of the year is one of the best means of attracting attention to the fact that the sanitary and heating engineer has goods that will make useful and lasting gifts, adding much to the comfort and health of every member of the family.

Tinsmithing and Sheet Metal Work

Numerous "Puzzles" Upon Which Sheet Metal Workers Can Practise at Their Leisure

Brings Out Reason why Round Vessels Hold More Than Square Containers of Similar Dimensions

By O. W. KOTHE, Principal, St. Louis Technical Institute

MANY sheet metal workmen are interested in something that is of little value, especially that has some hook or crook to it that everybody else does not understand. So, in traveling through the country every now and then, the mechanic is quite forward in bringing forth some peculiar problem that has more of a puzzling aspect than any practical or theoretical value. In this case we have two such problems, which may help to set a few other workmen right as to their real merits.

The first problem is shown as "A," where a piece of metal 8 x 8 inches square is cut up in such a way that it is supposed to make 65 square inches. That is, its original size was to contain 64 square inches or 8 x 8 inches in size, and when it is reassembled it is to be 5 x 13 inches, thus giving 65 square inches. Now, to be able to stretch the metal that much, so to speak, is a puzzle to most workmen. But unfortunately the law does not hold good in geometry as it does in loaning out money for interest or something like that. Our drawing "A" shows the measurements for cutting up this piece of metal originally 8 x 8 inches square, while the drawing "B" shows the pieces reassembled so as to make a rectangle relatively 5 x 13 inches in size. Now, in using cardboard there is always a little stretching of the paper and the rough edges that would throw a person off sufficiently to make it appear that measurements were exactly right. By cutting each line on the bright tin accurately with a sharp, square shear, so that there is no pulling or drawing to the metal, and then reassembling it, a diagram will be obtained similar to "B." The slant lines take up a small fraction of an inch somewhat less than an $\frac{1}{8}$ or a $\frac{1}{16}$, which is often hardly noticed by the experimenter. But if accurate tab is kept, losses in size will be accounted for somewhat as we show in this drawing, which makes eight-eighths of an inch, and that is a square inch, which is accounted for. Because of this difference the tradesman is asked not to jump to conclusions at the first trial, but if accurate work is done, the shortage in "B" will be self-evident.

Another sort of conundrum is shown in drawings "C" and "D," where most workmen fail to see that a round vessel will hold more than a square vessel of similar dimensions. That drawing "C" is two inches square and contains four cubic inches, while drawing "D" is two inches in diameter and one inch high and contains 3.14 cubic inches. Then the difference in this tank or vessel will be in the corners, where the square vessel will take on more area because of the corners shown by the dotted position of "D" than the round cylinder. But here again in taking their girths or circumference we see that "C" requires eight inches of girth shown by "F," while "G" is the girth for "D" and only requires 6.28 inch, so there is some difference in circumference that cannot be compensated for in volume.

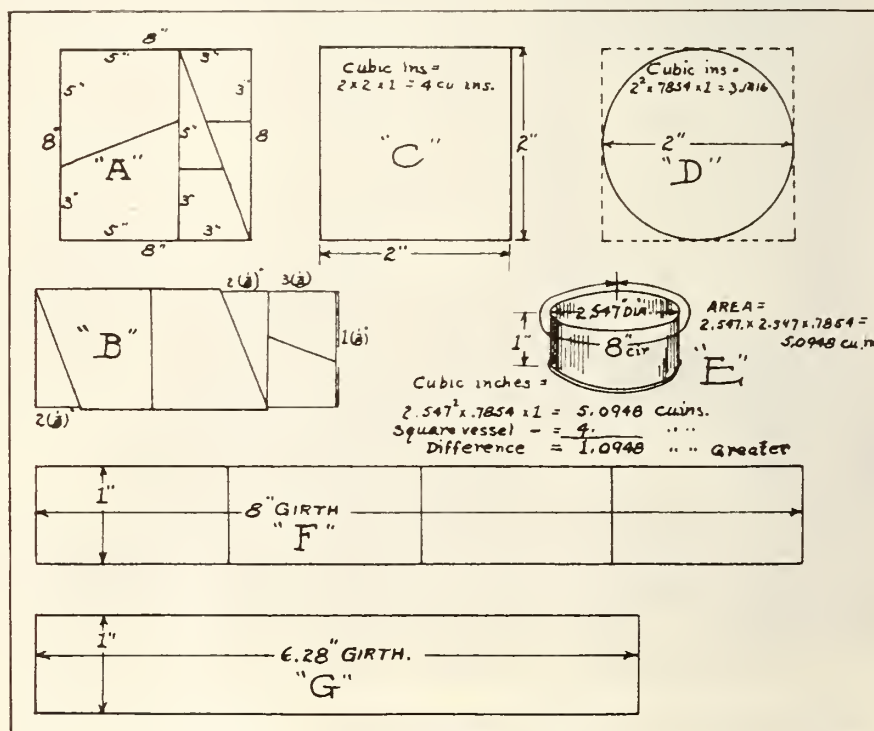
Now to consider a round vessel as "E," that has the same girth as "C," or eight inches; then the round vessel

would have 2.547 inches in diameter. Figuring the volume for this diameter, we would have 5.0948 cubic inches. Here it is rather odd that the round vessel "E" has over five cubic inches of volume, while the square vessel has only four cubic inches, there being a difference of 1.0948 cubic inches where the round vessel is greater than the square vessel. The loss results in the corners; where these corners are sharp in "C" the metal crosses over itself, so to speak, while in a cylinder as at "E" the metal is continuous and does not interfere with an adjacent side.

Any workman can try out these things to his own satisfaction by making small models, and then making his calculation accordingly and the reason will become self-evident. So in reality there is no puzzling about the problems.

CANADIANS INTERESTED IN NEW STEEL COMPANY

Erie, Pa. — Announcement has been made by W. C. Johnson, of Pittsburg, that, acting for a group of Pittsburg and Canadian steel men, he has obtained options on two thousand acres of land at Shade Lake, Pa., which may be purchased as the site for a large steel mill. The company is said to represent \$250,000,000 in capital.



Patterns of Some of the Unusual Problems Which Often Confront Sheet Metal Men

Intersecting Round Pipe in Flat Surfaces on a Diagonal Angle is Problem Often Met With

Pattern Shows Solution to Problem of Double Angled Tee Intersection, as Worked Out on 45-Degree Angle

Written for Sanitary Engineer by O. W. KOTHE, Principal, St. Louis Technical Institute

NOW and then it occurs that a round pipe must be intersected in a flat surface on a sort of diagonal angle, meaning to have a bevel in plan as an elevation. Whether these intersections would be on another pipe, as in heating and ventilating, or a forced draft system, or on other surfaces such as tanks, hoppers, hoods, etc., the treatment would be the same. The idea is to have a plan angle, which in this case is 45 degrees, where the line 7-7 in. is the horizontal axis line of tee in plan and the line A-B is placed on a 45-degree angle to it, while the elevation axis line 4-4 in. is placed on a 45-degree angle with a vertical line. With these positions properly located the problem becomes similar in development as all other tees. So, describe the sections "M" and "N" of elevation and plan and divide them in the same number of equal parts, projecting lines from "N" horizontally to intersect A-B and from "M" draw them parallel to 4-4 in. indefinitely. Now, from each point in plan or line A-B we erect lines to intersect those of elevation of similar number, as in points

1 in., 2 in., 3 in., 4 in., etc. This gives the points of penetration between these two fittings and enables drawing the miter lines as shown.

To set off the pattern for tee we extend the line 1-7 of elevation as 1-1 and on it step off the circumference for the tee. This can be done by calculating the true girth and measuring off and afterwards checking up from spaces from "M" so as to equalize any discrepancies. Next project lines from each of these points parallel to 4-4 in. of elevation and then from each point in the miter line of elevation square out lines to intersect those in stretchout of similar number. This gives us points 1 ft., 2 ft., 3 ft., 4 ft., etc., and enables tracing the irregular curve and gives the pattern for the tee. If the pattern for the opening is desired, observe where the tee "N" of plan intersects the line A-B, which gives us the length or girth which the tee covers in this position, so we pick these spaces as 4 in., 5 in., 6 in., 7 in. of plan and set them on a horizontal line over from elevation. From each of these points we erect lines and

then from each point in the miter line of elevation we bring over lines to intersect those in stretch out of similar number and this enables tracing the outline for the opening. Where the edges are to be seamed together an extra allowance must be made on the inside for seaming purposes.

SALES PROMOTION PLANS

(Continued from page 16)

ing out large quantities of what are known as 'dealer helps.' Thousands of dollars are wasted each year because the jobbers do not co-operate with the manufacturers in passing these 'dealer helps' along to the retailers. Get behind and help the manufacturer.

"Many retailers in a city as large as Toronto cannot afford to advertise in the large daily newspapers. Rates are based upon circulation and the returns would not be in keeping with the outlay necessary, to say nothing of the fact that the paper's distribution would bring up the difficult problem of transportation expense. For example, a small order might be received from some point on the other side of the city, time and expense of delivery completely eating up the profit of the transaction and leaving the cost of the advertising as a loss.

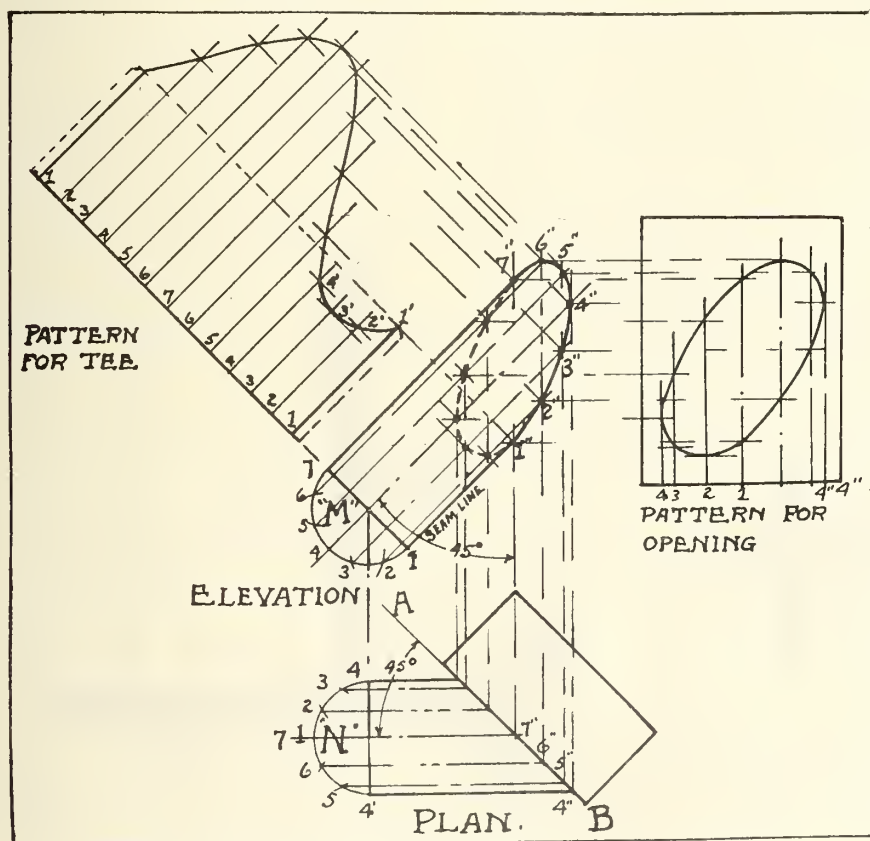
Best Form for District Business

"It may seem strange, coming from an advertising man whose principal interest lies in the preparation of advertising for publication in newspaper and magazines, but I believe that the retail plumber or heating man in Toronto will find best results from advertising matter specially directed toward his particular prospects.

"Take the district immediately around your shop, get the names of every householder within a certain area and send out occasional letters to them, touching on your service or on what you have to sell. The manufacturers with whom you deal will be only too pleased to furnish you with literature for enclosing with your letters. After you have gone over this territory thoroughly, broaden out a bit, taking in more territory in the district until soon you will find that you have a representative list covering a good area.

"Take care in such letters always to get the personal touch into them. Address the letters to the prospects personally, with initials and addresses correct and sign your letters personally. Make your prospects feel you are interested in them and in the securing of their patronage. Check over your list frequently and keep the addresses up-to-date, for the list is one of the most important items. Spell all names as the people spell them themselves, even though this may be slightly different from the manner in which they are usually spelt, and you will get your prospects quicker than if you are careless.

(Continued on page 28)



Working Drawing Shows Pattern for Angle Iron Used By Sheet Metal Men for Reinforcing Pipe.

Questions and Answers Regarding Plumbing and Heating Practice

How to Plan Piping for Septic Tank

Plumber Who Has Done Little Rural Work
Enquires About Details of Getting Proper Relative
Height of House Drain

Editor Sanitary Engineer:—Not having as yet installed any rural plumbing, and purposing doing so in the near future, I would like to receive a few pointers as to how to go about the job of installing a septic tank.

I have a number of back copies of Sanitary Engineer in which there appears a number of articles describing sewage disposing systems. I purpose following the information contained therein, but there are just one or two details about which I am not quite sure.

For instance, suppose I am going to put in a septic tank, how do I go about the job of getting the proper relative length of the house drain as it leaves the house and the four-inch clay drain tile which goes to make up the disposal bed?

Western Ontario Plumber.

Answer.—First let us congratulate our engineer for having decided to go after some rural business. The country is simply teeming with profitable business for those who go after it in the proper manner.

Now regarding the question: The way

to go about it is, first to dig a trench or a hole 23 inches deep in the ground area where the field tile pipe is to be laid. Next take levels backwards towards the house and use the measurements shown in the accompanying illustration of a septic tank. This illustration shows clearly the proportional sizes and measurements of a septic tank suitable for a house occupied by a family of four.

Now, having found the level at which the field tile pipe is to be laid, it can be established where the hole for the tank is to be built. Take a stick and mark it off so as to determine at what position the house drain is to pass through the wall of the house. The hole will be three feet below the level of the ground, and the bottom of the horizontal piece of fitting No. 1 will be three feet four inches higher, that is, provided that the bottom of the tank is made of concrete 6 inches thick.

It will be noted that the top of the septic tank will only be one foot six inches higher than the normal level of the ground and with one foot of earth as a covering, the total height of ground

over tank is about two feet six inches above the natural level of the ground where the sewage disposal field tile is laid.

TECHNICAL EDITOR.

Too Much Waste in Current for Water Heater.

Editor Sanitary Engineer:

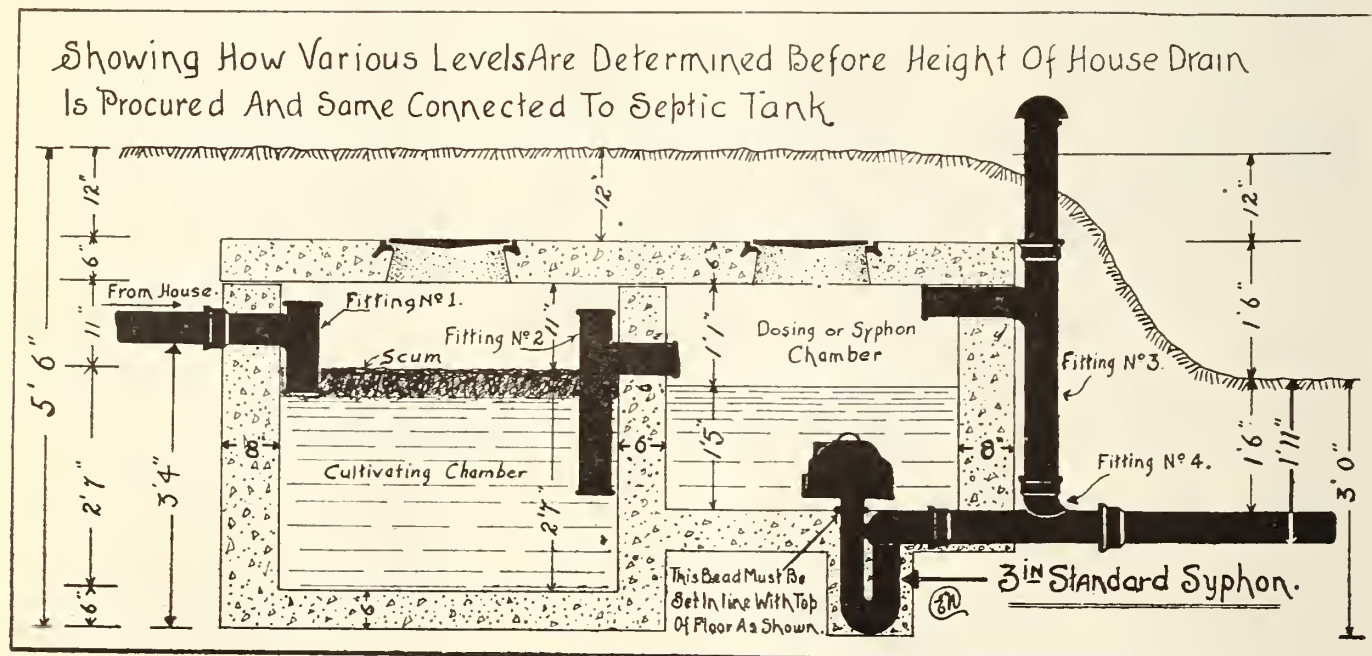
One of my customers has had an electrician instal an electric heater to heat the water in a range boiler. When the house was built I installed the plumbing and I put a circulation pipe on the hot water supply so as to enable him to get hot water quickly and without wasting a lot of water.

It now transpires that the way the electric heater is fitted, it is using too much current because all the water is continually in motion, and too much heat is lost by radiation from the hot water. What can be done to cut down the loss of current?

Electric Water Heater

Answer.—There are only two ways to overcome this waste of electric current. One is to have all the circulation pipes and range boiler well covered with some reliable pipe covering.

The other way would be to disconnect the circulating pipe at the boiler, take out some of the pipe and plug or cap



the ends. Another way, too, would be to have your customer procure what is known as a flat rate electric heater.

then the question of loss of electric current would not be a factor.—Technical Editor.

Wooden Gas Pipes Were Once Used in City of London, Ontario

Wooden Pipes Used With Much Success for Distribution of Gas—Laid About Year 1875

Wooden Gas Mains as used in the City of London, Ontario.



WOODEN pipes were used for the purpose of distributing gas in the city of London, Ontario, with a great degree of success for many years. In the year 1875 or thereabouts, some twelve to fifteen miles of wooden pipes were laid. The sizes were from 4 inches to 8 inches in diameter, and were made from tamarack logs, bored out by a specially designed lathe. They were turned up and bored in 8-foot lengths and fitted together with tapered male and female joints, similar to the method adopted when fitting wooden pump cylinders together. All the fittings, such as tees, crosses and bends were turned up, too, in specially designed lathes. The pipes and fittings were tarred, then rolled in kiln-dried sawdust, tarred again and the pipes were again rolled in sawdust. This treatment assisted resistance to moisture.

From what can be learned from the London City Gas Company, the pipes gave splendid satisfaction for upward of twenty years, and even to this date when excavating work is being carried on, these pipes are unearthed, some of them are found in a splendid state of preservation, though some of course are found to be completely rotted away.

A snapshot of some of these pipes shows the good condition some of them are in. Sanitary Engineer found the wood in a sound condition, and the tarred and sawdust coating gave evidence of good service. The two pieces shown herewith are 8 inches inside diameter, the walls being approximately two inches thick.

A PROBLEM IN GROUP HEATING (Continued from Page 18)

- "loop" with short services, it was found that the cost is reduced somewhat and these figures are used in the estimate herewith.
- (2) The value of the water plus the value of the heat in the condensate is insufficient to justify the required investment in return mains.
 - (3) An ornamental stack can be constructed which will be sufficiently attractive to be proof against reasonable objections. It will add to the cost at least \$1,000 which has been included in the revised figures.
 - (4) In a study of a community or district heating plant, in St. Louis, the idea was proposed of building a community garage with capacity for 15 cars, in which would be located the boilers, likewise room for storage of coal. On the second floor it was proposed to equip an apartment for the man who would be in charge of the garage and the firing of these boilers. Such a building would cost roughly \$25,000 to \$30,000 and the rent of garage space would more than provide interest and return on the combined community boiler plant and garage.
 - (5) From the figures we have eliminated all items of "customer's house piping."
 - (6) We have eliminated "interest" from the cost of operation.
 - (7) The item of "coal cost" has been reviewed from the standing of assumed evaporation "steam delivered" to customer on efficiency of

operation. Oil burning is out of the question at this time, because of the cost of oil.

- (8) It is quite evident that clerical labor, superintendent, fitter, etc., if charged to a single block, will result in a disproportionate overhead. The same organization can look after many blocks, and therein lies the desirability of including all the desirable block in a district rather than a restricted community. The matter of depreciation and maintenance has been reviewed and is established for the purpose of this analysis as follows:

Maintenance—general . . . 2% of the total
Maintenance—boilers 2.00 per h.p. per year.

Depreciation 4% of the total
Insurance and taxes . . . 2% of the total

Cost of Construction and Operation

The following, then, is the statement of cost of construction and operation of a single unit, or block plant. It consists of 42 residences, 4 apartment buildings, one club and nine garages, aggregating 3,630,000 cu. ft. of space, which will require an annual average of 38,090,500 lbs. of steam condensed in radiators and house piping. Based upon an evaporation of 6¾ lbs. of water per pound of coal and an "efficiency of delivery" of 85 per cent., there will be metered 5¾ lbs. of steam per pound of bituminous coal burned, or approximately 3,300 tons.

Hundreds of community heating plants may be installed throughout the country on the co-operative participating plan, and made self-sustaining, with a fair return on the cost, and providing for upkeep and renewals.

Advantages of Plan

Financially the desirability of pooling the cost of installation and operation of many individual boiler plants, and constructing and operating one central plant, is evident. Why not do away with the annoyances of getting coal, handling ashes, and depending upon irresponsible attendants? Why not have one smoke stack instead of a multitude? Why not enjoy a clean community free from the smoke nuisance and its damage to property and furnishings?

A very worthwhile item to consider in the presentation of community or district heating is the avoidance of coal shortage, in advance of the heating season. The unloading of coal in the basement of the individual house represents a very considerable tying up of money which earns nothing during the winter season.

The foregoing results are based upon 100 per cent. of the existing buildings participating in the community, or block plan of heating, and it becomes at once apparent that the greatest possible "load" should be secured to insure the maximum return on the investment.

From the standpoint of the consulting engineer, the cost of a plant or
(Continued on Page 28)

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A Startling Scientific Finding

IN THESE days when human ingenuity is being taxed to devise effective methods for increasing production, it is again emphasized that simple and commonplace factors which, in some instances, may be the real key to a problem, frequently are long overlooked or practically ignored on the assumption that the only possible solution must be found by some roundabout and difficult method.

Many employers who have felt that the only remaining hope for increasing the efficiency of their working forces, has been in the employment of efficiency specialists armed with intricate plans for extracting productive "pep" from the individual workers, will be startled by the report of the New York Commission on Ventilation, on the effect of high temperatures on health, vigor and working efficiency, which recently was reviewed at length by Dr. W. A. Evans, the well-known health authority. Of special significance to readers is this paragraph of the report:

"An increase from 68 to 75 degrees F. caused a decrease of 15 per cent. in the work done by workmen who were stimulated by a cash bonus. An increase in temperature from 68 to 86 degrees when the relative humidity was 80 caused a reduction of 28 per cent. in the work done, in spite of the bonus offer."

The report summarizes the findings on the effect of living in overheated rooms, as follows:

"For these reasons we believe that the dangers of room overheating are far more serious in their effect on human health and efficiency than has been generally realized, and that every effort should be made to keep the temperature of the schoolroom, the workroom and the living room at 68 degrees or below."

Dr. Evans stresses another and vital factor in heating, by stating that there has been found to be a definite relation between the temperature of factory rooms and accidents.

"When the temperature is kept at 67 degrees F. there are fewer accidents," says Dr. Evans. "The accident rate in factories kept at 52 degrees F. was 35 per cent. higher than in those at 67. At 77 degrees F. the accident rate was 39 per cent. higher than at 67."

Dr. Evans directs attention to this paragraph:

"The most important result of our experiments, perhaps, has been the demonstration that even so-called moderate temperatures, between 75 and 86 degrees, are accompanied by demonstrable harmful results. Extreme high atmospheric temperatures are highly prejudicial to human health and comfort, and it is to such temperatures rather than to chemical pollution that most serious effects of bad air are due."

The commission sets a relative humidity of 52 per cent.

as being best. It is admitted that the relative humidity of the air is a factor in comfort, but the commission believes that variations in humidity within reasonable limits are not as harmful as generally believed.

When it is considered that the simple attention of a janitor of ordinary intelligence is all that is necessary to hold the temperature down to the point of highest working efficiency in the winter months, and that the health and comfort and the productive ability of employees may be reduced as much as 28 per cent. through the rise of a few degrees in temperature, while the likelihood of accidents increases as much as 39 per cent., it will be seen that the finding of the New York Commission is worthy of much more than mere academic consideration of employers and departmental heads.

The law of gravitation became evident to everybody—after Newton discovered it. The recent discoveries in ventilation, which their exponents do not pretend will cover all the factors of human efficiency, do seem so important that one is led back to the truism that true efficiency is in daily reach of all of us and usually it is the simplest way of doing a thing.

Care in Stocktaking

INVENTORY time is just around the corner, and many plumbers are looking forward with great interest to a survey of the figures which will show them the result of their year's operations. In many shops, accounting systems are in use which give a fairly accurate idea of the progress of the business from month to month, but even in such cases, the annual taking of stock is an operation which holds much of interest.

It would appear that there is little reason for any misgivings concerning the year's business, many plumbers reporting as large or a larger volume of business this year than last year. There is somewhat of an element of uncertainty in some quarters, probably due more to the feeling that things have been going too good to last after the years of depression, than to anything more tangible. The odd thing is that a number of plumbers who have absorbed some of this all-too-current sentiment have, upon making a thorough investigation of their businesses, found that they are making much more money than they thought they were. We have in mind one plumber who frequently pulled a long face over keen competition and was convinced that he was not making money, who was very much surprised when auditors went over his books for a six-month period of this year and found he had made a net profit of \$1,750 after allowing himself a salary as part of the firm's expenses, as he should rightfully do.

The inventory this year should be taken with great care, because of the fact that prices are undergoing rapid fluctuation and a proper basis of cost should be established as a sound working basis. The disposition to be made of the higher sales tax must also be considered, as it practically amounts to an advance in price on most lines of supplies from Jan. 1 next. The fact that some lines of supplies are being advanced anywhere up to 7 and 8 per cent., and the sales tax being held responsible, shows the necessity for care.

Officials of the Income Tax Department, while admitting that plumbers cannot be checked to the last cent on such statements, point out that in various ways plumbers fool nobody any more than themselves by doctoring up inventory statements and other records to suit themselves. Some plumbers have said they are planning on adding a straight 1½ per cent. to the cost of their goods in taking inventory after Jan. 1. On the face of it it would appear that this would provide a more favorable return for taxation, but exactly the reverse is the case, as will be noted upon thorough examination.

Christmas Greetings



"CHRISTMAS comes but once a year, but when it comes it brings good cheer."

The foregoing, dealing with the most universal holiday observed throughout the world, expresses in simple manner the spirit which characterizes the observance. Christmas is the day of glad goodwill wherever the angel song of "good tidings of great joy which are for all people," has been heard, and where the Child whose birth they hailed has been welcomed to hearts and homes.

The Christmas spirit is the spirit of "peace and goodwill." It is a little over five years since the world was thrilled with the joy of peace after the years of war, and those five years have been substantial progress in the rehabilitation of the races which suffered and in the providing of means by which the peace of the world may in future be preserved.

The whole progress of the world is based upon "peace and goodwill," and it is largely through the high appreciation of this spirit that progress has been made rapid on this continent. Friendly countries border our vast Dominion, there are no hostile demonstrations, fortifications or other implements of warfare. One hundred years of peace between these countries has recently been completed and made the cause of much jubilation.

This is the spirit in which things are accomplished. There is no time for suspicion and ill faith, and all through the course of business extension the spirit of "goodwill" is the one that must dominate.

In Canada this Christmas finds us in favorable circumstances to enjoy a merry time. This country has not had the tremendous boom felt in the country to the south, but there are dangers in too rapid expansion and the steady progress made in Canada is perhaps the surest guarantee of its continuance. The outlook appears bright with plenty of chance for everyone to make a comfortable living providing intelligent restraint is practised, and it is only by such practice that the true spirit of Christmas can be diffused.

Sanitary Engineer takes this opportunity of extending to all readers the hope for a Merry Christmas and a Happy and Prosperous New Year in 1924.

Opportunities Do Not Count Without Co-operation

Minute Message No. 41

Written for Sanitary Engineer by FRANK STOCKDALE

Buying Series



MANY towns seem to have everything needed for growth and prosperity. They have a good trade territory, the people have money to spend, and the stores are filled with goods, yet somehow they do not go forward, people do not buy liberally, and the stores do not prosper as they should. The reason is easy to find.

There is too much suspicion, too much jealousy, too much fault finding.

The result is that some "hold empty pitchers," some "drink from the town pump," some "eat sugar" and some "take their lemons natural" when they could all have delicious "lemonade" merely by a little co-operation.

The big shops reach out and get business because they are organized to do so. They have the "pump," the "pitcher," the "sugar" and the "lemons" all under organized control.

Can the smaller operator meet this competition?

The answer lies mainly in his ability to sacrifice little things in order to win big things—his ability to co-operate with his fellow tradesman.

THINK IT OVER—APPLY IT TO YOUR BUSINESS

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News Notes From Coast to Coast

Doings in the Plumbing and Heating Industry

BUSINESS CHANGE

The Pas, Man.—A. T. Engebretson, who has conducted a plumbing business here, has been succeeded by C. S. Dickens.

DISCONTINUES BUSINESS

Estevan, Sask.—The Union Plumbing & Heating Co., of this town, has announced the discontinuing of business.

CONTEMPLATE NEW BUILDING

Toronto.—Page-Hersey Tubes contemplate the erection of a new finishing building of brick and steel construction.

WILL INSTAL COMFORT STATION

Regina, Sask.—The public comfort station, to be installed in the basement of the city hall, has advanced a step further with the calling of tenders by the city commissioners. The plans for the installation fix the estimated cost at \$8,500.

PLUMBERS SELL TOYS

Ottawa.—McKinley & Northwood, Ltd., in the development of their Christmas business, have launched farther afield than is the case with most plumbing, heating and sheet metal workers, their advertising in the local newspapers containing the announcement that they are handling Christmas tree holders and construction toy sets.

PREPARING TO BID

St. John, N.B.—Plumbing and heating contractors of St. John, N.B., and vicinity are preparing to bid on the heating and plumbing systems of a new church in East St. John, a suburb of St. John. The new edifice will be built near the recently opened dry dock, and near the proposed new docks of the Canadian National Railways. The foundation for the church is now under way.

PLUMBERS RETURN FROM NEW ENGLAND

St. John, N.B.—Judging from the numbers of journeymen plumbers who have returned to the eastern provinces from New England, the slump in New England has taken definite hold of plumbing and heating contracting there. A number of journeymen went to New England in the summer and fall, drawn there by the prevailing high wages during the building boom in Massachusetts and other states of New England. Most of the building ceased the middle of November. The returning journeymen expect to return in the spring if the high wages continue, but there is ample doubt that the same wages will prevail, owing to the undoubted building slump.

AWARDED HEATING CONTRACT

Stratford, Ont.—The Duggan Plumbing & Heating Co. have been awarded the contract for the heating system in the plant of the Brooks Steam Motors, Ltd.

PLUMBERS WIN AT BOWLING

Goderich, Ont.—The Plumbers defeated the Bankers in the opening game in the bowling tournament on the local alleys. Fred Hunt captained the winners, who included Jack Woods, M. N. MacDonald, D. McMillan and Pat Murphy.

INSPECT AMERICAN PLANTS

Vancouver.—Central heating plants in Portland, Tacoma and Seattle were inspected by local lumbermen who are interested in the project to establish a similar plant in Vancouver, should the ratepayers grant them a franchise at the coming municipal elections.

PLUMBERS URGE MORE CONVENIENCE STATIONS

St. John, N.B.—The question of convenience stations has again come to the fore in the city council of St. John, N.B. This question has been discussed by the members of the St. John city council for the past fifteen years but no progress has been made, the tendency having been as usual with the members of the council on all subjects to waste valuable time in discussion. St. John is one of the few cities in America minus at least one comfort station. Master plumbers have repeatedly urged the necessity of opening one of the stations. There are many available locations but through the apathy of the city council members, the matter has always been shelved.

SANITARY ENGINEER LETTER BOX BRINGS BUSINESS

Sanitary Engineer has received the following letter from the Missouri Water & Steam Supply Co., St. Joseph, Mo.: "A postal to us referring to page 21 of your November 15 issue was recently received. From the information you furnished the . . . Co. they sent an order to us for a repair which has been sent to them. Thanking you for your interest in this matter,

*"Missouri Water & Steam Supply Co.
"per F. J. Flynn."*

INVESTIGATE CENTRAL HEATING PLAN

Ottawa.—A central heating plant to heat the city hall, police station and other civic buildings adjacent to the city hall is being considered by the board of control. Data are being secured from other cities where this system is in force.

APPROVE CENTRAL HEATING BY-LAW

Winnipeg.—Ratepayers of this city gave a safe majority to the money by-law for the erection of a central steam heating plant. Work will be started as soon as possible, although the larger activities will not be undertaken before spring.

LANDLORDS MUST PAY WATER RATES

Woodstock, Ont.—The problem as to what to do in the case of unpaid water bills was solved by the Water and Light Commission here when it was decided that the landlord would be responsible in a rented house. The cutting off of the water for unpaid bills was strenuously opposed by Dr. Ruttan, M. O. H.

INSTALLING METERS IN LONDON

London, Ont.—The metering of London's water supply to eliminate waste is nearing an end, the meters being installed at the rate of 600 a month. Over 3,000 meters have been installed since the work was begun, expert plumbing inspectors making a thorough examination of every water service for leaks before a meter was installed.

RECEIVED TWO EXHIBITION AWARDS

London, Ont.—The Empire Brass Co. received two awards this fall from exhibitions where they exhibited their Empire-Duro water systems. The exhibit of water systems and plumbing goods shown at the Western Fair here was awarded a gold medal, while the exhibit of Empire-Duro pumps shown at the Yarmouth County Fair, Yarmouth, N. S., was awarded a diploma of merit.

INSTALS BIG PLUMBING AND HEATING JOB

St. John, N.B.—The heating system as well as the plumbing in the new skating rink in Dartmouth, N.S., has been installed by S. H. Crimp of Dartmouth, plumbing and heating contractor. Mr. Crimp succeeded J. Ritchie & Company. The rink which has been named the Marks-Cross Arena was recently opened with formal ceremony. In addition to his plumbing and heating business, Mr. Crimp is also a sheet metal contractor and maintains a hardware store in Dartmouth.

Instal Plumbing; Charge on Taxes

A recommendation that the Fort William Board of Health obtain from the next city council an appropriation large enough to ensure plumbing installation in premises where the owners are unable to pay for the work, was included in the annual report of the sanitary inspector submitted recently. The inspector also urges the formation of a definite program in respect to the enforcement of the Public Health Act on streets already provided with sewers. "The elimination of the old fashioned privy and provision of proper sanitary arrangements tends to greatly reduce infant mortality," he said.

As showing a condition which exists in the foreign section of the city, the inspector stated that he had served during the year 518 notices to repair privies and had posted warnings in five languages and an advertisement in a Finnish newspaper, all of which brought good results.

During the year fifty-five old premises were connected to sewers and plumbing installed in accordance with the city by-law.

Prize Contest by Empire Brass Mfg. Co.

For the last few years one week in each year has been set aside by the Duro Pump & Manufacturing Co. of Dayton, Ohio, to be known as "Duro Week." The primary idea is to help the plumber increase his sales of Duro pumps. The factory has prepared a window display to be placed in the plumber's show-window according to his own idea of arrangement.

Prizes, amounting to \$100 in gold are being offered to the Duro salesmen sending in the greatest number of photographs of Duro Week Window Displays, same to be submitted before December 20th. Prizes are to be divided as follows:

1st prize, \$50 in gold; 2nd prize, \$25 in gold; 3rd prize, \$10 in gold; 4th prize, \$5 in gold; 5th prize, \$5 in gold; 6th prize, \$5 in gold.

Empire Brass Mfg. Co., Ltd., London, Ont., are distributors in Eastern Canada for this line of pumping equipment which is marketed here under the name of Empire-Duro and to do their share in boosting along the Duro Week idea they are offering \$30 in prizes to the plumbers in their territory who prepare the best Duro window displays.

The week commencing December 3 was selected as Duro Week but plumbers who have not had an opportunity to get in their displays by that time can get them in during the week of December 10th or the week of December 17th, providing photographs are in by December 20.

Death of J. H. Owston

Toronto.—The death of John H. Owston, sales manager of the James H. Robertson Co., occurred at the General Hospital here, following an illness of six weeks' duration. The deceased, who was 55 years of age, started in with the James H. Robertson Co. in a minor capacity over 35 years ago, advancing to the position of purchasing agent and sales manager, making a wide circle of friends in the trade throughout the province.

The late Mr. Owston was active in Masonic circles, being a past master of St. John's Lodge, A.F. & A.M., and a Shriner. He was also a member of Albert Lodge, I.O.O.F. He is survived by his widow, Mary Langdon Owston; his father, John Owston; five brothers and one sister.

A great many of the prominent manufacturers of plumbing and heating equipment and officials of supply houses were among the many mourners attending the funeral, which took place on Tuesday, Dec. 11.



JOHN H. OWSTON,

Sales manager, James H. Robertson Co., who passed away this week. He had been employed with the firm for over thirty-five years.

FEWER PLUMBERS AFFECTED BY NEW SALES TAX

(Continued from page 11)

within the category of contractors and not subject to license, but those making articles for retail sale to consumers or to other tradesmen might correctly be classed as manufacturers and subject to license if they do over \$10,000 of such business a year.

This is apparently as clear a review of the existing situation as can be made at present.

A ruling which Sanitary Engineer has secured from the department concerning the application of sales tax on business

transactions entered into about the end of the year and carrying over into next year is as follows:—

"As respects the tax applicable on transactions which were consummated prior to Jan. 1, all goods sold and shipped on or before Dec. 31 are subject to the present provisions of the law. The present tax also applies on goods sold on or before Dec. 31, invoices for which have gone forward and for which payment has been made on or before that date even though such goods are, at the request of the purchaser, stored for later delivery by the seller. 'Payment has been made,' in the previous sentence, means actual cash or cheque payment or the acceptance on or before Dec. 31 of a draft payable at a later date."

The foregoing means that on all goods sold and shipped before the end of this year the present sales tax of 4½ per cent. will apply irrespective of when the goods are paid for. But if a plumber orders material in December and asks the manufacturer to hold the material for delivery any time in 1924, and fails to pay for the material by Dec. 31 in cash, by cheque or accepting draft payable at a later date, the higher sales tax of 6 per cent. will apply on the account when it is settled.

The new tax will be one of 6 per cent. levied at the source of manufacture or import. It will be collected in practically every case by the manufacturer on the sale price of his goods, whether he is selling to jobbers or to master plumbers or tinsmiths. There will be no tax on the jobbers' transactions with master plumbers, but the tax which the jobber paid when he bought the goods will be passed along to the retail distributor when he buys through jobbers.

An Advantage

Under these conditions there is an advantage in buying goods before the end of this year, a bigger advantage for the jobber than for the master plumber, but an advantage for both. The jobber only pays 2¼ per cent. tax on purchases from manufacturers to-day and the master plumber pays 4½ per cent. tax. After Jan. 1, either purchase from manufacturers will be on the basis of 6 per cent. Hence, most jobbers and some master plumbers are feverishly placing orders to take advantage of the situation. It must be remembered that delivery can be made next year providing payment is made by December 31, but a ruling is to the effect that any goods produced by manufacturers must be specially appropriated to orders placed before Dec. 31. This is to prevent manufacture on a large scale now by producers who might take orders after the turn of the year and date them back so as to give buyers the advantage of the smaller sales tax.

Canada's total exports during the year ending October amounted to \$994,436,069, imports over the same period totalling \$912,459,278.

A Line on Doings of the Old Country Trade

AT a recent meeting of the Association of Plumbing Teachers, held at the Polytechnic, Regent St., London, A. C. Martin, of the Northern Polytechnic, entertained them to a lantern lecture on acetylene welding.

* * *

THE Master Plumbers' Association has agreed to join the newly-formed National Association of Water Users. The Master Plumbers have a live organization, being represented on practically all organizations connected with or touching upon the work of their craft, and are paying particular attention to the education of the young plumber.

* * *

FOLLOWING upon action taken at the meeting of the General Council for the National Registration of Plumbers, held at Bournemouth during the summer, a committee has been at work revising and re-organizing the register, and taking up other matters relative to re-organization. It is presumed that on the successful conclusion of this work, the promotion of another Plumbers' Registration Bill will be undertaken.

* * *

THE Institute of Plumbers held its half-yearly meeting on November 22, at Colwyn Bay. A new feature, introduced at the meeting by the Executive Committee, was found in the informal gathering preceding the regular session, at which various matters governing the interests of the plumbing trade were discussed by the representatives of area federations and local associations.

* * *

AN interesting discussion which arose at the half-yearly meeting of the Institute of Plumbers was brought up by Ian Dyson, of Leeds, who said that it had been stated that colored students had passed the plumbing examinations with flying colors, while English candidates had not done so well. This, he maintained, was not the case, the practical test given the colored students having really been no test at all, while the English boys had done far better work.

* * *

SOME idea of the growing scope of the plumbing trade and the adaptability necessary to engage successfully in it may be gathered from syllabus of subjects for the examinations in plumbers' work issued by the City and Guilds of London Institute, which indicate that a young man presenting himself for those examinations must possess a considerable knowledge of such subjects as the properties and uses of gases for the fusion of metals, the heating of water,

illumination; sheet and plate metals, including the setting-out patterns; thermit welding or fusion welding of hard metals, such as steel, iron, copper, brass, etc.; gas fitting; hot water supply, heating by hot water and steam, even by central heating stations; ventilation; the construction of chemical plants; ship plumbing, including heating and ventilating, steam pipes and bending, welding and rivetting of large pipes, in addition to a knowledge of the usual scientific subjects, such as inside and outside lead work, sanitation and drainage.

PROBLEMS IN GROUP HEATING

(Continued from page 23)

production should not weigh against the desirability of community heating service. The countless community centres in which there are six, ten, a dozen or twenty property owners,—whose chief concern is the comfort of dependable heating service and who are able and willing to pay a reasonable charge for the privilege,—would be the consulting engineers' field for development of community heating plants. Every building having at present a heating boiler has a potential beginning of an argument for a community or block plant, because the longer the owner operates this separate unit, with its separate upkeep, labor and annoyance, the more certain is the possibility of interesting him in "buying his heat" from a central community plant, through properly installed underground heating mains; just as has come to be the custom of having water through pipe, gas through pipe, and electricity by transmission into the house, apartment or business building.

We have "backed away" from this very interesting study and development long enough, it would seem, and it is clearly a wide and almost unexplored field of substantial return to the consulting engineer, and his collaborator, the architect.

GETTING SHARE OF SEASON'S TRADE

(Continued from page 19)

ly-printed showcard, will add much to the sales effectiveness of the display.

In catering to the Christmas trade, as in putting on any other campaign, all details should be well planned out in advance, else the effort is likely to be disjointed and haphazard in the extreme. Successful business undertakings are never accomplished without a carefully planned campaign, and neither will a Christmas campaign sell goods unless it is one that not only attracts interest,

but holds and leads to a buying interest as well.

A line of selling that has seldom been made use of by the merchandiser of bathroom fixtures is the use of an appeal to attract the attention of the boys and girls of school age. There are, perhaps, no more enthusiastic Christmas shoppers than they, and certainly there is no more impressionable class. With them, the problem of what to buy is of vast importance from more than one angle. Limited funds preclude the purchase of the objects that their generosity and desire to please some dear one would otherwise prompt, and if they can be convinced of the real value and lasting pleasure to be afforded by a gift for the home, the sale is as good as made. A window trim with a showcard appealing to this class of purchaser is one well worth trying out.

SALES PROMOTION PLANS

(Continued from page 21)

"This form of advertising, from the standpoint of the small retailer in the large city, is the best means of advertising, to my mind. It is difficult at any time to trace direct results to advertising but this is one method where it is done more easily than in any other."

Following the conclusion of Mr. Kelley's address, Major Laurie Anthes, chairman of the meeting, tendered him a hearty vote of appreciation on behalf of the large assembly of members of the Live Wire Club who were on hand.

Jimmy Reid, popular member of the club, whose ability as a comedian and vocalist were already well known to the majority of those present, added fresh laurels by his able rendering of a number of Scotch songs, comic and sentimental, while W. Downing's vocal number was well received.

It was announced that arrangements were being made for the paying of a fraternal visit to the Hamilton Club on Wednesday, December 19, on which date, at the request of the hosts, the visitors are to furnish the speaker and entertainment program for the evening. A showing of hands indicated that the Live Wire Club would be well represented on that occasion.

W. C. Hunt Brass Works, Toronto, have been incorporated for \$200,000 to manufacture and deal in brass, copper, metal products, etc., by William C. Hunt, Isaac Johnson, Leonard B. Johnson, and others.

H. J. Logan Co., Toronto, has been incorporated for \$200,000 to manufacture and deal in machinery, implements, rolling stock, and to carry on business as machinists, foundrymen, metal workers, boiler makers, etc., by Robert Wherry, William Zimmerman and Wendell H. Osborne.

Tenders Wanted

Toronto.—Heating and plumbing contracts are to be let on two bungalows, \$5,000 each, to be erected on Poulton Ave. R. G. Sprague, 775 Coxwell Ave., is the owner and is doing the sub-letting.

Toronto.—Sub-trades will be let shortly on block of stores and apartments, \$45,000, St. Clair and Northcliffe Ave. B. Swartz, 336 Dundas St. W., is preparing the plans. He is also receiving tenders on all trades in connection with stores and apartments, \$12,000, south side Bloor West.

Toronto.—Plumbing and heating contracts are to be let on \$12,000 residence, Dunvegan Rd. P. L. Speirs, 92 Northcliffe Blvd., is owner and builder.

Toronto.—Plumbing and heating contracts are to be let on \$18,000 residence and garage being built north-east corner Northcliffe and Rosemount. William Moad, 46 Oakwood Ave., is the owner.

Verdun, P. Q.—Roofing and plumbing contracts are to be let on \$14,000 residence on Third Ave. D. Rolland, 103 Second Ave., is the owner and builder.

Montreal.—Roofing and plumbing contracts are to be let on three residences, \$15,000, on Denormandie for E. Tremblay & Co., 400 Williams St.

Windsor, Ont.—Plumbing contract is to be let on \$18,000 addition to telephone exchange on which Wells & Gray, Ltd., have the general contract.

Toronto.—Heating and plumbing contracts are to be let on \$15,000 addition to garage, rear 3421 Yonge St., owned by B. R. Amodeo, 1216 St. Clair.

Montreal.—Roofing, plumbing, heating and ventilating contracts are to be let on store and flats, 4th Ave. and Masson Sts., for which tenders are being received by the architect, J. E. DePatrick, 381 4th Ave.

Montreal.—Roofing, plumbing and heating contracts are to be let on \$12,000 residence, near 2376 St. Denis St. Z. Lamoureux, 2282 St. Denis St., is owner and builder.

Toronto.—Plumbing and heating contracts are to be let on two pair residences, \$7,000 pair, on Kingston Rd., of which N. J. Liscombe, 55 Keystone Ave., is the owner and builder.

Toronto.—Tenders on sub-trades are being received by the architect, D. H. Burnham, 260 Laurier Ave., on \$15,000 duplex residence being built on Grimthorpe Ave.

Toronto.—Plumbing and heating contracts are being awarded on seven bungalows, \$5,000 each, on Runnymede Rd. D. H. Burnham, 260 Laurier Ave., is the architect.

Burnaby, B. C.—Plumbing and heating contracts are to be let on \$6,471 addition to Edmonds school. Percy & Weedon, 2105 Kingsway, are the general contractors.

Cardston, Alta.—Trades are to be sub-let on \$146,000 school to be built here. General contractors are Claydon Co., Winnipeg.

Montreal.—Roofing contract is to be let on \$125,000 office building going up on Victoria Pier. General building contractors are Collet & Freres, 243 St. Hubert St.

Toronto.—Plumbing, steam heating and sheet metal work in connection with addition to Capitol Theatre, stores and offices, Castlefield Ave. and Yonge St. Tenders are being received by R. McClelland, Capitol Theatre, Yonge St., Toronto.

Mimico, Ont.—Plumbing and heating contracts are to be let on \$10,000 theatre being built here for W. J. McClintock, Lake Shore Rd.

Toronto.—Plumbing and heating contracts are to be let on \$15,000 store and dental suite, Dundas and Centre Ave. W. B. Charlton, 12 Kendal Ave., is the general contractor.

Outremont, P. Q.—Plumbing, heating and tiling contracts are to be let on \$10,000 cottage being built on Dollard Rd. for Z. Filion, 823 St. Hubert. Gody & Tombini, 2934 Drolet, are the general contractors.

Outremont.—Heating and plumbing contracts are to be let on alterations to shop and apartments, \$11,000, on Arlington Ave. J. B. Deane, Carleton, has the general contract.

Contracts Awarded

Toronto.—William Boyd, 18 Austin St., has the heating contract and Christopher Bros., 20 Astley St., the plumbing contract on two residences, \$5,000 each, Craighurst Ave., for William Rayfield, 495 Sherbourne St.

Toronto.—L. C. Carstead, 9 Redpath St., has the heating contract and G. C. Lath, 8 Davisville Ave., the plumbing contract on one pair residences, \$7,000, being built on Montgomery Ave.

Toronto.—W. R. Willis, 189 Broadway Ave., has the plumbing and heating contracts for \$7,000 residence being built on Alexandria Blvd. for F. Markham, 155 Alexandria Blvd.

Toronto.—Harry Rushby, 219 Wychwood Ave., has the plumbing contract and L. C. Carstead, 9 Redpath St., the heating contract

on four residences, \$10,000, on Edith Drive for Thomas W. White, 207 Bathurst St.

Toronto.—George Nunn, 556 Spadina Ave., has the heating contract and George Moore, Bedford Park, the plumbing contract on one pair residence, \$7,000, Castlefield Ave. for G. B. Webb, 76 Orchard View Blvd.

Toronto.—J. Walker, 88 Malvern Ave., has the plumbing contract and L. C. Carstead, 9 Redpath St., the heating contract on four pair residences, \$6,000 pair, Henning Ave., near Eglinton; George Nicholson, 6 High Park Gardens, owner.

Twenty Years Ago

The following items are reproduced from MacLean Pub. Co. trade paper files of December, 1903:

"Bertrand & Bernier, plumbers, etc., have registered in Montreal."

* * * *

"Masson & Dubois, plumbers and roofers, Lachine, have registered."

* * * *

"The McEachern Heating & Ventilating Co., Galt, have dissolved, and Sheldon & Sheldon will continue the business."

* * * *

"If the large orders being received by the supply houses are any indication, the plumbers must be very busy at present and must expect good business during the winter. Lead and iron pipe are in particularly strong demand."

* * * *

"The Credit Forks Vitrified Stoneware Sewer Pipe Co., Ltd., Toronto, has been incorporated with a share capital of \$200,000. The directors are: R. Carroll and John McKnight, Toronto; A. H. Chitty, W. J. Thompson and S. G. Stone, all of Sault Ste. Marie, Ont."

* * * *

"The Automatic Ventilating Closets Co., Toronto, have been incorporated with a capital of \$60,000 to manufacture closets, plumbers' and builders' supplies, for which H. B. Robinson's patent rights have been acquired. The provisional directors are: H. B. Robinson, C. H. Thompson and J. Dougherty, Toronto; G. E. Silvester, Sudbury; and W. Vanuzen, Toronto Junction."

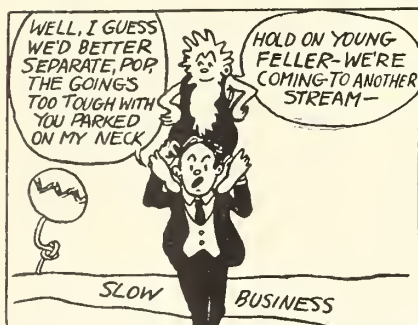
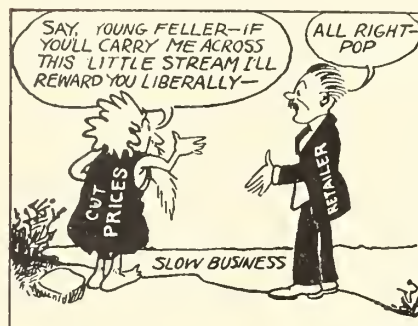
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"The first steps in an agitation for new plumbing regulations have been taken in Toronto. For several years the Toronto Master Plumbers' Association have had under consideration a by-law which, from their standpoint, would be more advantageous than the present one. Such a by-law has been introduced, Dr. Sheard stating that citizens had complained about the inadequacy of the present regulations and that he had come to the conclusion that amendments were required."

* * * *

"The inaugural social evening of the Toronto Master Plumbers' Association was largely attended. Among the particularly large representation from the manufacturers and jobbers were noticed: W. H. Carrick, Gurney Foundry Co.; Peter M. McMichael, Dominion Radiator Co.; J. H. Patterson, Toronto Hardware Co.; H. W. Anthes, Toronto Foundry Co.; A. A. McMichael, James Robertson Co., Ltd.; Charles Morrison, James Morrison Brass Mfg. Co.; W. B. Malcolm, A. D. McArthur, Mr. Mean, Cullum & Johnson Co.; W. S. Jackson. City representatives of the various firms were also present in the persons of R. Cluff, E. Brewer, W. Helliwell, W. J. Spence, W. Cluff, E. Rogers, C. World and others. Fred Armstrong acted as chairman of the gathering."

Modern Arabian Nights Inbad the Dealer



—From Hardware Age.

Market Conditions and Tendencies

Price Trend on Sanitary and Heating Supplies

Markets at a Glance

H EATING equipment has been the feature of sales during the past two weeks in all centres. Dealers and jobbing firms handling heaters, stoves, furnaces, and boilers, as well as other heating equipment, have received very satisfactory volumes of business, and so far December has proved to be a very satisfactory month. It is the opinion of many close followers of the heating trade that there is much more work in these lines yet to be done before the heating season can be called closed. This work will consist of considerable numbers of new installations as well as a fair volume of necessary repair work which each year is

left until almost the last day of suitable fall weather.

Revisions in prices during the past two weeks have held a distinctly upward trend. The most important of these being an advance in the price of all lines of solder, amounting to about 2½ cents per pound, and cotton plumbing goods, such as candle wick and wastes. Both of these advances were direct results of sharp advances in U.S. primary markets.

The cast iron fittings price revisions, which were announced in the Dec. 1 issue of Sanitary Engineer are made effective in both Montreal and Winnipeg.

The collections situation remains unchanged.

Montreal Markets

MONTREAL, December 13.—Local dealers and jobbing houses report that business has been fairly active during the past two weeks. Sales in stoves, furnaces, and other heating equipment have been of a substantial nature and well up to the average. Higher prices are in effect on cotton wastes. Reduced prices are effective on several lines of pipe fittings, including cast iron elbows, tees, crosses, etc.

The ingot metal markets have been less active this week with price changes not very great. This condition is not surprising in view of the recent sharp advances and the approaching period of the year is also inducive to a lesser volume. In England the elections have been a disturbing factor and naturally have their effect on business.

HIGHER PRICES IN FORCE ON COTTON WASTE

Montreal.

New and higher prices are now in effect on both white and colored cotton wastes. White cotton shows an advance over former prices of one cent per pound on all grades, while colored cotton has advanced ½ cent per pound.

Prices now ruling are as follows:

COTTON WASTES—	Per lb.
Cream polishing	0 25
White, XXX extra	0 21
White, XX grand	0 19½
White, XLCR	0 18
X Empire	0 16½
X Press	0 15
Colored—	
Fancy	0 16
Lion	0 14½
Standard	0 13
Popular	0 11
Keen	0 09
Wool Packing—	
Arrow	0 25
Axle	0 21
Anvil	0 17
Dominion Wipers—	
White cotton	0 18
Colored cotton	0 14

REDUCED PRICES EFFECTIVE ON PIPE FITTINGS

Montreal.

Reduced prices are now in effect on several lines of cast iron pipe fittings.

Cast iron elbows, tees, crosses, etc standard and extra heavy, which took a discount formerly of 10 per cent., are now being quoted at 15 per cent. off.

Malleable iron fittings show no change from prices formerly quoted.

Prices in effect locally are given herewith:

PIPE FITTINGS—Malleable—

Piece list	63%
Bushings	15%
Tinned straps, net per lb.	20
Sd. unions	30%
Railroad unions (black)	35%
Railroad unions (galv.)	40%
Crossovers	25%

CAST IRON—

Sd. elbows, tees, crosses, cap reducers, etc.	15%
Extra heavy ditto	15%
Plugs	10%
Bushings	15%
Eccentric reducers	plus 5%
Drainage fittings (black)	22½%
Drainage fittings, (galv.)	27½%
Flanged unions	10%
Companion flanges	22½%
Flanged fittings	20%
Branch tees	5%
Nipples, 1½ to 4" close and short.	45%
Ditto, long	50%
Ditto, 4½ to 8" close and short.	35%
Ditto, long	40%
Couplings, 4" and under	25%
Ditto, 4½ and larger	5%

LEAD AND ZINC PRODUCTS ARE FAIRLY ACTIVE

Montreal.

While lead products are steady in price following the recent advance, it would not be surprising if further advances take place in the near future, as lead at the present time is strong, both in Europe and the United States, and indications point to a firm market for the next month or two at least. Consumption at the present time is heavy in all quarters and there is no surplus available. In England the shortage is especially pronounced and values are considerably higher than on this side.

Prices in effect locally are given herewith:

LEAD AND ZINC PRODUCTS—

Lead pipe, per 100 lbs., up to 2 in.	14 50
Do., 2 in. to 8 in.	15 50
Do., 8 in. and over.	16 50
Lead waste, per 100 lbs.	15 50
Discount 10 per cent.	
Lead wool, lb.	0 15
Lead sheets, 2½ lbs., sq. ft. lb.	0 11½
Lead sheets, 3 to 3½ lbs., sq. ft. lb.	0 11
Do., 4 to 8 lbs., sq. ft. lb.	0 10½
Cut sheets, ¾ c. lb. extra and cut sheets to size 1 c. lb. extra.	
Soldier, wiping, lb.	0 25½
Solder, commercial, lb.	0 26
Solder, strictly, lb.	0 27
Solder, guaranteed, lb.	0 30
Solder wire, lb.	0 39
Zinc sheets, casks	0 11
Do., broken lots	0 12

PRICES ON CANADA PLATES REMAIN FIRM

Montreal.

Prices on Canada plates are very firm at the present time. Distributors report that sales are only fair at present, as the consumer in most cases has bought his requirements for the season.

Prices are being well maintained and are given herewith:

CANADA PLATES—

Half bright, 60s	6 00
Half bright, 52s	5 90
Blued 52s	5 90
Blued 60s	6 00
Welsh, polished, 60s	7 50
Welsh, polished, 52s	7 75
Galvanized, 52s	7 75
Galvanized, 60s	8 00

BAR IRON PRICES REMAIN FIRM

Montreal.

Firm prices are being maintained on bar iron and steel. Sales are said to be somewhat on the quiet side at present and of a more or less hard to mouth nature. Trading in this line is expected to show considerable improvement after the first of the year.

Prevailing prices are given herewith:

IRON AND STEEL—

Common bar iron, 100 lbs.	3 90
Iron finish machinery steel.	4 00
Mild steel	3 90
Single reeled machinery steel.	5 00
Band steel	3 90
Sleighshoe steel	3 90
Spring steel	5 25
Tire steel	4 15
Harrow tooth steel	4 15
Mining tool steel, per lb.	0 18
Black Diamond tool and cast steel, per lb.	0 19

RADIATOR AND BOILER SALES HOLDING UP WELL

Montreal.

Sales in practically all lines of heating equipment are showing up fairly well at the present time. Dealers report that considerable repair work is being done and that a good volume of business is being done in new equipment.

Prices are steady and are given herewith:

RADIATORS AND BOILERS—

Radiator list prices are for 1, 2, 3, 4 and 5 column radiators, per sq. ft.

45 in. to 38 in., \$1; 32 in., \$1.10; 30 in., \$1.15; 26 in., \$1.20; 23 in., \$1.26; 22 in., \$1.30; 20 in., \$1.36; 18 in., \$1.40; 16 in., \$1.50; 14 in., \$1.55; 13 in., \$1.60. Discount 44 per cent for hot water, and 45 per cent for steam.

Wall radiators—5 ft., \$1.15; 6 ft., \$1.10; 7 ft., \$1.05; 9 ft., \$1.05; 12 ft., \$1.05; Discount 41 per cent.

Boilers—Round . A water boilers, sizes from 0 to 10, 52 per cent. off list. Square or sectional hot water or steam boilers, 15 in., 3 per cent. with Ontario Government trimmings, list. Square or sectional water boilers, 19 in. to 36 in., 8 per cent. Square or sectional steam boilers, 19 in. to 26 in., 6 per cent. Ontario Government trimmings, list plus 7 per cent. Square or sectional water or steam boilers, 48 in., list plus 10 per cent. With Ontario Government trimmings, list plus 13 per cent.

Round steam boilers, standard trimmings, 16 per cent. Ontario Government trimmings, 13 per cent.

F.o.b. Montreal, Toronto, Guelph.

COMPRESSION GOODS SELLING IN FAIR QUANTITIES

Montreal.

Sales in compression goods during the past two weeks are reported as being fairly active.

Prices are unchanged from former levels and are given herewith:

VALVES AND BIBBS—

Compression work, standard.	48%
Fuller work, standard	30%
Quick opening, compression bibbs.	45%
Bath cocks, quick opening.	53%
Bath cocks, compression	45%
Basin cocks, quick opening.	50%
Flatway stop and waste cocks, std.	56%
Roundway stop and waste cocks, std.	42%
Brass steam cocks, standard, 1/4 in.	25%
Radiator valves, standard	55/25%
Do., removable discs	55/25%
Globe, angle and check valves, std.	20%
Gate or straightway, Webber.	22%
Emco disc globe valves.	25%
Emco disc check valves	25%
Jenkins globe, angle, check and swing check	plus 15%
Jenkins gate or straightway	plus 11%
Jenkins iron body, globe and angle.	10%
Jenkins iron body, gate.	12%
N. P. "O" and "S" traps.	34%

Japan Increases Output of Sheets

WHILE placing large orders with American and European makers for structural shapes and galvanized sheets, the Japanese government is taking steps to increase domestic production. The government has helped Tokio galvanizers out of their difficult position and they are operating to produce 10,000 tons a month. The steel mills in the earthquake zone have been given an informal promise of assistance.

At the government steel works a plate mill is to be closed at once, the men in the mill being transferred to sheet mills. Another plate mill is to be used in preparing ingots for sheet mills. At sheet mills and structural shape mills, operations are to be extended two hours a day.

The monthly production of steel ingots, when the change is fully carried

out, is due to be 54,300 tons, while monthly production of shape will be increased to 39,500 tons, including structural shapes and rail to the extent of 17,550 tons.

The government steel works have decided to accept mercantile orders. The monthly tin plate sale, for instance, has been resumed. The supply of steel is being increased steadily.

In the steel market bars are quoted at 5 yen (\$2.45), per 10 kwamme (82.67 pounds). Sheets are quoted at 8.50 yen (\$4.16) per 10 kwamme. The average price of nails is around 20 yen (\$9.80) per keg. Galvanized sheets are quoted at 1.95 yen (\$0.95) per sheet. These prices are above those prevailing before the earthquake.

The government discountenances any more price increases.

GALVANIZED SHEETS SELLING WELL IN HEAVIER GAUGES

Montreal.

Sales in galvanized sheets have fallen off to a certain extent, as the demand for iron for roofing purposes is practically over for the year.

Dealers report that there is a ready sale at the present time of the heavier gauges. Prices are steady and show no change from those recently issued.

TIN PLATE SELLING IN FAIR QUANTITIES

Montreal.

Dealers report that there is only a fair demand for tin plate at present, as the consumer in most cases has sufficient quantity to carry him through the season. Fair size replacement orders are, however, coming in from time to time.

Prices are firm locally and are as follows:

TIN PLATES—

20 x 28 x 100 lbs. basis	15 50
20 x 28 IC, 112s	16 00
20 x 28 IC, 112s	18 00
20 x 28 IXX, 56s	11 00
28x28 IXXX, 56s	12 50

TERNE PLATES—

20 x 28 IC, 112s, 200 lbs.	14 50
20 x 28 IC, 112s, 214 lbs.	15 00

BLACK SHEETS MOVING IN FAIR QUANTITIES

Montreal.

With the exception of the heavier gauges, little trading is being done by dealers locally in black iron sheets.

Prices are unchanged and are quoted as follows:

BLACK SHEETS—

18-20 gauge	5 40
22-24 gauge	5 45
26 gauge	5 50
28 gauge	5 60

A charge of 25c per 100 lbs. is made for less than case lots. An extra 10c. per 100 lbs. is also charged on sheets 26 in. wide.

SALE OF CLOSET GOODS FAIR AT PRESENT

Montreal.

A fair volume of business has been done in closet goods during the past two

weeks. Prices are unchanged from levels formerly quoted and are given herewith:

CLOSET COMBINATIONS—

Low Down Outfits,	each
Closet, standard outfit, oak.	24 00
Do., post hinge seat	24 50
Do., oak vitro or Pussyfoot	24 00
Do., post hinge seat.	24 50
Do., mahogany vitro or Pussyfoot, post hinge seat and cover	27 00
Do., vitreous china, oak post hinge seat and cover	29 00
Do., vitreous china, mahogany post hinge seat and cover.	29 50
Do., white vitro or Pussyfoot, mahogany post hinge seat and cover	30 00
Do., enamelled iron tank, oak post hinge seat and cover	28 75
Do., enamelled iron tank, mahogany post hinge seat and cover.	29 00
Add for 3/4" valve on supply pipe	1 25
Add for spud	0 60
Add for reverse trap bowl.	1 50
Add for syphon jet bowl	7 00
Deduct for supply pipe	0 80
Deduct for floor hinge.	0 60
Richelieu bowl	8 00
Washdown bowl with spud.	9 90
Reverse trap bowl with spud.	9 90
Syphon jet bowl with spud.	15 40

CLOSET SEATS—

Oak post hinge seat and cover	3 85
Oak wood strip seat and cover.	3 50
Mahogany finish post hinge seat and cover	4 05

CLOSET TANKS—

Low down, oak vitro or Pussyfoot with fittings less seat	12 50
White vitro or Pussyfoot with fittings, flush elbow and supply	16 50
Vitreous china tank with fittings, flush elbow and supply	16 00
Enamelled iron with fittings, flush elbow and supply	18 90

SALES IN SOIL PIPE CONTINUE FAIRLY ACTIVE

Montreal.

Sales in soil pipe are reported as being fairly active at the present time.

Discounts are unchanged and are given herewith:

SOIL PIPE—

2 and 3 inch.	27%
4 inch	32%
5 and 6 inch	27%
8 inch	5%

FITTINGS—

2 to 6 inch	44%
8 inch	5%

QUIET WEEK'S TRADING IN SCRAP MATERIALS

Montreal.

Dealers report another quiet week in scrap materials. The market is weak

and little improvement is expected until the situation in Europe becomes somewhat more settled.

Prices show no alterations from those previously issued and are as follows:

SCRAP—

Automobile Tires	0 35
Rubber Shoes	0 02
Yellow brass	0 06
Red brass	0 08
Light brass	0 04½
Scrap zinc	0 05
Lead, heavy	0 05¼
Lead, tea	0 02
Heavy copper	0 11¼
Heavy copper	0 11¼
Wrought iron, R. Rd. No. 1 per gr. ton	14 00
Malleable scrap (ton)	16 00
Pipe scrap (ton)	8 50
Heavy melting steel	9 50
No. 2 busheling	5 00
Boiler plate	12 00
No. 1 machinery cast	20 00

RANGE BOILER PRICES REMAIN STEADY

Montreal.

Trading in range boilers is reported as being quite active at present.

Prices are unchanged and are given herewith:

RANGE BOILERS—

5 Gallon	\$13 50
12 "	14 00
18 "	15 00
25 "	16 50
30 "	special net price 8 75
35 "	20 50
40 "	22 75
52 "	35 00
66 "	60 75
82 "	74 00
100 "	103 00
120 "	117 00
144 "	164 00
168 "	187 00
192 "	210 00

Discount Standard, 45 per cent.; Extra heavy, 40 per cent.

TRADING IN ENAMELLED WARE FAIRLY ACTIVE

Montreal.

Sales in enamelled ware are reported as being fairly active during the past two weeks. Prices are firm and are in effect locally as follows:

ENAMELLED WARE—

Sinks, flat rim—	1 only	2 only	3 only
16 x 24	\$ 7 50	\$ 7 40	\$ 7 30
18 x 30	8 70	8 60	8 50
20 x 30	9 90	9 80	9 70
Bath tubs, roll rim, 4, 4½, 5 feet, 24 to 30 in. wide			51 40
Bath tubs, 5½ feet			57 10

Lavatories—

17x19 in. Apron F139 or P4045	15 30
18x24 in. Apron F154 or P3845 or P3847	23 60
18x21 in. Apron F169 or P4205	17 60
17x19 in. Roll rim. F241 or P4345	12 60

Less 35 per cent.

STRENGTH OF LEAD FEATURE OF INGOT METAL MARKET

Montreal.

The metal markets have been less active this week, with changes in prices not very great. This is not surprising in view of the recent sharp advances and the approaching period of the year is also inducive to a lesser volume. In England the elections have been a disturbing factor and naturally have their effect on business.

TIN.—The market opened strong on Monday, but there was a slight reaction chiefly caused by profit taking. This is not surprising, but there is a feeling that the advance may be resumed next week. There is talk in London of a scheme for stabilizing the price of tin,

but this would be rather difficult to arrange and is more or less in the air at present. The local market is steady at 53½c. per lb.

COPPER.—It is evident that no sustained advance can be looked for until production has been curtailed somewhat, and there is no sign of this up to the present. It is fortunate that consumption in the United States has been as good as it has been or the surplus would be much greater. While prices are low, they are not likely to improve very materially just yet. The local market is quiet at 18½c. for electro and 18c. for casting.

LEAD.—This is the strongest metal on the list both in Europe and the United States, and there is every indication of a firm market over the next month or two at least. Consumption continues very heavy in all quarters and there is

no surplus available. The shortage is especially pronounced in England, where values are on a relatively higher level than on this side. The local market is strong at 9½c. per lb.

SPELTER.—This metal continues to ebb and flow within narrow limits and there is no pronounced trend in any direction. The London market never approaches a point where export is possible, and until this is in evidence the United States market cannot improve materially. The local market is quiet at 9¼c. per lb.

ANTIMONY.—This metal is quiet but firm and demand temporarily fallen off. In view, however, of the small shipments from the East there is bound to be a certain shortage after the turn of the year. The local market is unchanged from last week with English quoted at 9c. and Chinese at 8½c. per lb.

Toronto Markets

TORONTO, Dec. 13.—Local dealers report that a very satisfactory volume of business has been handled during the two weeks that have just passed. Heating goods are the outstanding lines at present. Many new heaters as well as furnace and boiler equipments have been installed this month, as well as much repair work being done on old plants. Practically all local heating engineers are still very busy, and much local work is still expected before the end of the heating season.

A decline has been made in Quick Opening radiator valves. The general trend in prices has been upward during the past two weeks. Cotton waste prices have advanced 1 cent per pound for white, and ½ cent per pound for colored. Cotton candle wick has also advanced from 73 cents to 79 cents per pound. Solder has advanced in price about 2½ cents per pound in all lines. One line of roofing nails has also advanced 25 cents per keg and ingot tin prices advanced sharply to \$54-\$55.

Galvanized sheets, Canada plates and cast and malleable pipe fittings are very firm at present quotations.

ADVANCE MADE IN PRICES OF SOLDER

Toronto.

The advances of last week and the week before in lead prices in United States have affected the local solder prices inasmuch as an advance has been made in all lines of solders.

The advance in the United States of from \$3 to \$5 per ton on pig lead during the past two weeks has gone far toward strengthening prices in local lead and zinc.

Prices in force are given herewith:

LEAD AND ZINC GOODS—

Lead pipe, per 100 lbs., up to 2"	14 50
Do., 2" to 8"	15 50
Do., 8" and over	16 50
Lead waste, per 100 lbs.	15 50
Note—Lead pipe is subject to a discount of 10 per cent.	
Lead traps and bends	15%
Lead wool, lb.	0 14½
Lead sheets, 2½ lbs., per sq. ft., per lb.	0 12¼
Lead sheets, 3 to 3½ lbs.	0 11
Do., 4 to 8 lbs., sq. ft. lb.	0 11
Cut sheets, ¾c. per lb. extra.	
Cut sheets, to size, 1c. per lb. extra.	
Solder, guaranteed, lb.	0 33
Do., Tinkers, lb.	0 32½
Do., strictly, lb.	0 32
Do., commercial	0 30
Do., wiping	0 29¾
Do., wire	0 39
Zinc sheets, casks, lb.	0 11
Do., do., less, lb.	0 12

STELCO ROOFING NAILS ADVANCE TWENTY-FIVE CENTS

Toronto

Stelco felt roofing nails undergo an advance of 25c. per keg. The one inch by 10 ga., bright, which has a 9-16 inch head, which previously was selling at \$8.50 per keg, now sells at \$8.75 per keg. The one inch by 10 ga., galvanized, which also has a 9-16 inch head, and which was selling at \$11.00 per keg, is now being quoted to the trade at \$11.25 per keg.

Q. O. RADIATOR VALVES DECLINE IN PRICE

Toronto.

A decline has occurred in the prices of quick opening radiator valves of the Emco type. The discount on these valves formerly was 70.2 per cent. off list prices. The new and lower prices now effective are a result of a new discount of 74.2 per cent. being put into effect on both the No. A888 Q. O. radiator valve, which is without the union, and the No. A889 Q. O. radiator valve which includes the union.

THE *Little Giant* PIPE WRENCH

Patented Feb. 4, 1913

—as Strong as
Its Name Implies

To fill a long felt need, the **Little Giant** was designed not only to reach the holes and corners and other "inaccessible" places, but with added **STRENGTH** to stand the gaff which regular pipe wrench duty requires.

Each of its three simple parts are made of the best drop-forged steel with metal perfectly proportioned to insure ability to stand up under the added leverage given by the extra length handle.

The double sets of teeth on the smaller sizes and the quadruple sets on the larger ones assure two to four times the wear, because the jaw can engage with any set you want to use.

Order **Little Giants** for your personal use and for your men. They will pay dividends throughout their long life.

All **Little Giant** Wrenches are positively guaranteed.

Send for circular No. 302 E.

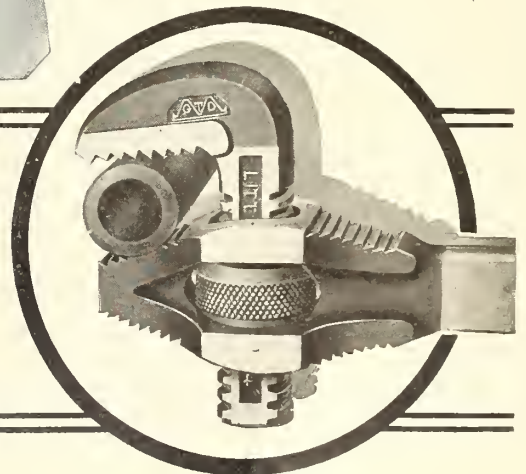
One Engineer Writes of His Two Little Giants:

"I wouldn't take a hundred dollars for them if I couldn't get any more."

Isn't such satisfaction worth the regular price to you?



GTD Screw Plates, Taps, Dies, Reamers, Gages,
Pipe Tools, Twist Drills, Machine Tools.



Drive Started to Eliminate Odd Sheet Sizes

A. T. ENLOW, president of the Dominion Sheet Metal Corporation, has opened a drive to eliminate non-standard items from stocks of both manufacturers and jobbers of galvanized flat sheets.

"In the nine gauges of sheets which are being rolled in Canada," says Mr. Enlow, "there are 99 sizes, ranging from 24 x 72 to 36 x 120. It has become both onerous and expensive to manufacturers and dealers to keep all these sizes in stock, and, with a view to eliminating those less-frequently-used sizes, we have issued a questionnaire to all users of galvanized flat sheets, requesting their opinion as to the sizes which could most

easily be dropped. A great many replies to the questionnaire have already been received.

"It can easily be seen that considerable saving will be accomplished if even a few sizes are eliminated. Much material and space is being unnecessarily tied up, to say nothing of depreciation in stock which is being carried too long. The saving will be reflected in lower prices and better service. Odd gauges and sizes can always be put through on special order.

"When the mind of the users of Canadian sheets has been determined, we will draw up a standard list and submit it for further scrutiny before adoption."

Other lines of valves are unchanged in price and are given with the new discounts in the list herewith:

VALVES AND COCKS—

Radiator valves, Q. O.	74.2%
Do., removable discs	68.6%
Globe Angle and check valves, std.	25%
Gate or straightway	25%
Emco globe valves, std.	20%
Emco check valves, std.	20%
Emco gate valves, std.	35%
Emco disc Globe	35%
Jenkins globe, angle and check valves	
+ 15 less 10%	
Emco swing check valves, 3/4, 1/2, and 1 in.	35%
Emco swing check valves, other sizes.	28%
Jenkins gate or straightway + 11 less 10%	
Jenkins iron body, globe and angle	
+ 10 less 10%	
Jenkins iron body, gate	less 12 1/2 & 10%
Jenkins swing check valves + 21 less 10%	
J. M. T. valves	plus 5%
J. M. T. style C valves	net
J. M. T. gate valves	12 1/2 and 10% off
Webber pattern valves	22%

COCKS (Steam)—

Brass steam cocks, 2 1/2 in. to 3 in.	43%
Brass steam cocks, 1 1/2 in. to 2 in.	50%
Brass steam cocks, std., 1/4 in.	25%

VALVES, FOOT—

	Blk.	Colord.
1 1/4 in.	0 77	1 16
1 1/2 in.	1 05	1 57
2 in.	1 32	1 98

HIGHER PRICE ON COTTON WASTE

Toronto.

As a result of the continued increase in prices on the cotton market, white cotton wastes have been advanced, one cent per pound, and colored wastes have advanced 1/2 c. per lb. The new prices are given herewith:

COTTON WASTES—

	Per lb.
Cream polishing	0 25
XX extra	0 21
XX Grand	0 19 1/2
XLGR	0 18
X Empire	0 16 1/2
X Press	0 15
Colored—	
Fancy	0 16
Lion	0 14 1/2
Standard	0 13
Popular	0 11
Keen	0 09
White—	
White XXX	0 21
XX	0 18
X	0 17
C.	0 15 1/2
Colored No. 1	0 14 1/2
Colored No. 17	0 14 1/2
Colored, No. 1A	0 13 1/2
Colored, 1B	0 11 1/2

The above prices are subject to quantity discounts.

INGOT TIN PRICES ADVANCED

Toronto

Ingot metal prices with the exception of tin were quiet and less active during the past two weeks. The price of ingot tin which was \$52.50 has been advanced to \$54 to \$55. Prices on other ingot metals are also given herewith:

INGOT METALS—

Copper, \$18.00 to \$19.00; Tin, \$54 to \$55; Lead, \$8.25 to \$8.50; Spelter, \$9.00; Antimony, \$8.25 to \$8.50; Aluminum, \$23.00 to \$25.00.

COTTON CANDLE WICK ADVANCES TO 79 CENTS PER LB.

Toronto.

The price of cotton candlestick, which has been 73 cents per lb., has advanced with some other lines of cotton goods and is now selling at 79 cents per pound.

PIG IRON ADVANCES \$1 PER TON

Toronto

Buying of pig iron both for present and first quarter use continues in fair volume and in marked contrast to the apathy shown during the past several months. An advance of \$1 a ton on all grades was announced by producers, which makes the quotations at Toronto, \$29.15 for No. 1, and \$28.65 for No. 2. There is but slight improvement in the volume of work being booked by foundries in this district.

Warehouse transactions of the past week have been very satisfactory and dealers are of the opinion that the month will be highly satisfactory. Changes in price have not been noted. The bar base remains at \$3.75 to \$3.90, with reinforcing bars at the same base. Steel bars from mill stock have been laid down in Toronto at \$3.50 during the past week. Two inch lapwelded tubes have been purchased at \$19, in small lots, 2 1/2 inch at \$22, and 3 inch at \$29, although this is somewhat at variance with the quoted prices of warehousemen.

PIG IRON—

No. 1, per ton	29 15
No. 2, per ton	28 65

SALES OF SCRAP MATERIALS SHOW NO INCREASE

Toronto.

Scrap metals are moving very slowly. No alterations in price have been made

this week and it is doubtful whether there has been any increase in business.

There has been some stiffening in prices in U. S. scrap but it has not been reflected in Canadian markets up until the present.

PRICES STILL FIRM ON CANADA PLATES

Toronto.

The prices are still very firm on Canada plates, owing to small stocks on hand with distributors.

Prices remain unchanged from former levels.

CANADA PLATES—

	Per box	American	Welsh
Ordinary, 75s	5 85	.....	.....
Ordinary, 60s	6 00	6 10	.....
Ordinary, 52s,	5 90	6 00	.....
Blued, 75s	6 15	.....	.....
Blued, 60s	6 00	6 25	.....
Blued, 52s	5 60	6 15	.....
Blued and oiled, 75s	6 25	.....	.....
Blued and oiled, 60s	6 10	.....	.....
Blued and oiled, 52s	6 00	.....	.....
Polished, 75s	7 05	.....	.....
Polished, 60s	6 90	7 35	.....
Polished, 52s	6 80	7 25	.....

MALLEABLE FITTINGS PRICES ARE FIRMER

Toronto.

Though some slight concessions were made in listed lines of malleable fittings the week before last and some jobbers were selling at a slightly lower price, the price is at present well maintained at former levels, which were 63 per cent. discount off the regular malleable fittings list.

Prices quoted on other lines of malleable cast fittings in Dec. 1 issue of Sanitary Engineer are still effective and are given in list herewith.

PIPE FITTINGS—

CAST IRON FITTINGS—

Elbows, tees, etc., standard sizes	20%
Plugs, solid, countersunk and std.	20%
Bushings	20%
Flanged unions	15%
Flanged fittings	20%
Drainage fittings, black	22 1/2%
Do., galvanized	27 1/2%
C. I. Stop cocks, up to 4"	25%
C. I. Stop cocks, up to 4" with brass plug ..	15%
Ringhangers	30%

MALLEABLE FITTINGS—

Bushings	15% to 20%
Hex. nipples, R. & L.	25%
Steam cock wrenches	30%
Union ells and tees	40%
Boiler fittings (old style)	32 1/2%
Do., (new style)	27 1/2%
Lip unions, all sizes	30% to 32 1/2%
Dart unions, blk. up to 2"	27 1/2%
Dart Unions, blk. 1/8" also 2 1/2" and over	10 and 10%
Wrought nipples to 4" close & short ..	45%
Wrought nipples up to 4" long	50%
Wrought nipples, 4 1/2 in. and up long ..	40%
Wrought nipples, up to 4" close & short ..	45%
Do., 4 1/2" and up, close and short	35%
Malleable fittings, sold from price list, less	65%
Draining fittings, black	22 1/2%
Do., galvanized	27 1/2%
C. I. Stop cocks, up to 4"	25%
C. I. Stop cocks, up to 4" with brass plug ..	15%
Ringhangers	30%

STOVES AND FURNACES HAVE GOOD SEASON

Toronto.

Stoves, furnaces and heaters have sold very well during the fall. Prices are steady and unchanged from those quoted formerly.

A decline is expected toward the end of December in the price of some of the above lines, but as the anticipated re-

You Can Prove That Gurney Boilers are "Small Eaters"

About the first question a heating system customer fires at you is this: "Is it hard on coal?" Or something along that line. And on your answer often hinges some good business for you.

You've doubtless had that happen more than once. I need hardly remind you of the answer in the case of a Gurney Heating System.

You can guarantee Gurney Boilers to have small appetites for coal. There are years of performance behind that claim. I have had many users declare that it costs one-third less to run a "Gurney."

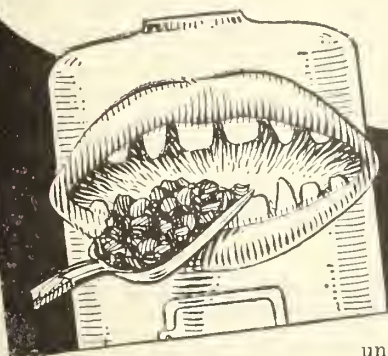
After all, that's exactly the purpose of such Gurney construction features as deep firepots with overhanging walls, triple-lived triangular roller-type grates and our patented "Economizer."

If you're not positive in your own mind that you can give prospects full details of the economical Gurney System, write to me personally today. I'll welcome the chance to prime you with business-getting information.

Yours for team work,

Holt Gurney

Gurney



Gurney Furnaces for Steam, Hot Water and Warm Air
—Gurney Stoves for Electricity, Gas, Coal and Wood
are good products worthy of the Gurney name

No use claiming coal economy for any Boiler unless you can prove it. We used the above special border to enclose a message to householders on the "Small appetite" features of Gurney Boilers as proven by owners. That advertisement spoke for you in saying "Our heating engineers and steamfitters are at your service to prepare estimates and give you experienced advice." That's the kind of advertising service we want you to turn to your own benefit. Are you doing it?

Economy is one of the three proven virtues of Gurney Heating Systems. Efficiency and elasticity are the other two. Knowing this boiler supremacy, you can stake your reputation on a "Gurney" every time—and never get let down.

By the way, have you the latest Gurney Heating literature? Write for it.

The Gurney Foundry Company Limited

Toronto and Vancouver

GURNEY-MASSEY COMPANY

Montreal

GURNEY NORTHWEST FOUNDRY CO.

Winnipeg

duction is in the neighborhood of 2 per cent., it will not appear, as an additional amount will be added to prices to cover sales tax, which will be absorbed in selling prices to the trade.

PRICES ON FLEUR-DE-LIS SHEETS REVISED

Toronto.

A slight revision and firming of prices has taken place during the past two weeks on Fleur-de-Lis galvanized sheets.

Prices on other brands of sheets remain at the levels published by Sanitary Engineer, Dec. 1 issue.

There is very little local price cutting on these lines now; the prices being quoted are representative of the market almost entirely.

Prices are given herewith:

SHEETS, GALVANIZED—

Premier and Apollo Brands—	per 100 lbs.
10 $\frac{3}{4}$ oz., 3 ft. wide.....	7 35
10 $\frac{3}{4}$ oz. narrower.....	7 15
28 U. S. gauge, 3 ft. wide.....	6 95
28 U. S. gauge, narrower.....	base 6 75
26 U. S. gauge.....	6 45
22 and 24 U. S. gauge.....	6 30
18 and 20 gauge.....	6 15
16 U. S. gauge.....	6 00
12 and 14 U. S. gauge.....	5 85
F.o.b. and delivered in Toronto.	

An extra 20c. per 100 lbs. is charged for Keystone and Premier brands copper-bearing sheets.

QUEEN'S HEAD—

28 gauge, base.....	7 50
26 gauge.....	7 10
24.....	6 80
22.....	6 65
18 to 20 ga.....	6 25

FLEUR DE LIS—

28 gauge, base.....	7 15
26.....	6 75
24.....	6 45
22.....	6 30
18 to 20 ga.....	5 90

RADIATORS AND BOILERS SELL IN FAIR VOLUMES

Toronto.

Notwithstanding the warm and unseasonable weather which has been experienced in Ontario during the past fortnight, fair quantities of radiators and boilers have been selling.

Prices are as formerly quoted in Sanitary Engineer, and together with ruling discounts are given herewith:

RADIATORS AND BOILERS—

Revised radiator list prices are for 1, 2, 3, 4 and 5-column radiators per square foot.
38 in., \$1; 32 in., \$1.10; 30 in., \$1.15; 26 in., \$1.20; 23 in., \$1.26; 22 in., \$1.30; 20 in., \$1.36; 18 in., \$1.40; 16 in., \$1.50; 14 in., \$1.55; 13 in., \$1.60.

Discount on 2, 3, 4 and 5 column standard sizes, 44 per cent. for water and 45 per cent. for steam.

Discount on 1-column standard size, and 2, 3, and 4-column hospital sizes 36 per cent. for water and 37 per cent. for steam.

Discounts on 1 column hospital size water 22 per cent. Steam 23 per cent.

Wall radiators—5 ft., \$1.15; 6 ft., \$1.10; 7 ft., \$1.05; 9 ft., \$1.05; 12 ft., \$1.05. Discount 44 per cent.

BOILERS—

Water:

Round 52 per cent. off list. Square 8 per cent. off list.

Steam:

Round, 13 per cent. off list; Square, list plus 7 per cent.

GALVANIZED SHEET PRICES STILL FIRM

Toronto.

The new prices quoted in Dec. 1 issue of Sanitary Engineer, on galvanized sheets are still being firmly maintained.

TIN PLATE PRICES FIRM BUT UNCHANGED

Toronto.

No price changes have occurred on tin plates during the past two weeks.

Prices now in effect locally are being firmly maintained.

TANK STEEL PLATE PRICES STIFFER

Toronto.

During the past two weeks, tank steel plate prices have stiffened slightly. $\frac{1}{4}$ -inch, and heavier, base price is now \$3.75

to \$3.90, and 3/16-inch is now being quoted at \$4.14 to \$4.25 per 100 pounds.

Black and blue annealed sheets are quoted at former prices.

BLACK SHEETS—

18-20 gauge.....	5 40
22-24 gauge.....	5 45
26 gauge.....	5 50
28 gauge.....	5 60

A charge of 25c. per 100 lbs. is made for less than case lots. An extra 10c. per 100 lbs. is also charged on sheets, 26 in. wide.

BLUE ANNEALED SHEETS—

10 gauge, base.....	4 60
12 gauge.....	4 65
14 gauge.....	4 70
16 gauge.....	4 80

TANK STEEL PLATES—

$\frac{1}{4}$ -in. and heavier, base.....	3 75	3 90
3-16 in.....	4 15	4 25

Winnipeg.

WINNIPEG, Dec. 13.—Local dealers report seasonable business with noticeable activity in heating equipment. The firm tone prevailing on the cotton market has been reflected on the local market by an advance on cotton waste and cotton candle wick. Tap plugs are quoted at higher prices. Cast iron collars show a slight decline. A revision in discount is noted on plugs and bushings. Lunkenheimer valves show an upward revision in discount. Galvanized sheets and Canada plates maintain a firm tone and with the market ruling firm, higher prices are expected.

COTTON WASTE PRICES MOVE UPWARD

Winnipeg.

The strong tone of the cotton market has been reflected by an advance on all lines of cotton waste. Latest quotations are as listed below:

COTTON WASTE—

NEH Full Bales.....	19 25
Broken Quantities, per lb.....	0 20 $\frac{1}{4}$
In 10 lb. pkgs.....	0 21 $\frac{3}{4}$
REM Full Bales.....	22 50
Broken Quantities, per lb.....	0 23 $\frac{1}{2}$
Colored Full Bales.....	15 75
Broken Quantities, per lb.....	0 16 $\frac{3}{4}$

COTTON CANDLE WICK ADVANCES TO 80 CENTS PER POUND

Winnipeg.

Quotations on cotton candle wick have been advanced to 80c. per lb. Plumbers' oakum is quoted at \$8 per bale and 10c. per lb. in small lots. Hemp packing is quoted at 35c. per lb.

TAP PLUGS REACH HIGHER LEVELS

Winnipeg.

Tap plugs for repairing leaks in boilers, radiators, iron pipe fittings, etc., are quoted at higher levels and prices prevailing are as listed below:

TAP PLUGS—

Per doz.—Size— $\frac{1}{4}$ in. \$2.40; 5/16 in. \$2.48; $\frac{3}{8}$ in. \$2.72; 7/16 in. \$3.10; $\frac{1}{2}$ in. \$3.27; 9/16 in. \$3.85.

DECLINE NOTED ON CAST IRON COLLARS

Winnipeg.

Cast iron collars, tapped, for 1 $\frac{1}{2}$ in. iron pipe, show a slight reduction and quotations are 25c. each.

REVISION IN PRICE ON PLUGS AND BUSHINGS

Winnipeg.

A revision in discount is noted on plugs, bushings, standard flange unions and Dart unions. Plugs are quoted at

list price less 10 per cent., bushings and flange unions at 5 per cent. and Dart unions net list price.

LUNKENHEIMER VALVES REACH HIGHER LEVELS

Winnipeg.

Practically all lines of Lunkenheimer valves show an upward revision in discounts and following are revised quotations:

LUNKENHEIMER VALVES—

Globe R-new—list price plus 55%.
Angle Renew—list price plus 55%.
Globe Fernew—list price plus 4%.
Needle Valves—list price plus 40%.

VALVES SHOW A REDUCTION IN DISCOUNT

Winnipeg.

A revision in discount is noted on all lines of valves. Revised prices are as follows:

VALVES—

Horizontal check valves—list price plus 4%.
Globe and angle valves—list price plus 60%.
Angle Check, size $\frac{1}{8}$ to $\frac{3}{4}$ in.—list price plus 90 per cent.
1 to 2 inch—75%.
Swing check, size $\frac{1}{2}$ to $\frac{3}{4}$ inch—list price plus 50 per cent.
Swing check, size 1 to 2 inch—32 $\frac{1}{2}$ %.
Double Disc, size $\frac{1}{4}$ to $\frac{1}{2}$ inch, list price plus 74 per cent.
Size $\frac{3}{4}$ to 2 inch—47 $\frac{1}{2}$ per cent.
2 $\frac{1}{2}$ to 3 inch—32 $\frac{1}{2}$ per cent.
Handy, size $\frac{1}{2}$ to $\frac{3}{4}$ inch—list price plus 54%.
Size 1 to 4 inch—39%.

PRICES ON RANGE BOILERS CONTINUE STEADY

Winnipeg.

No changes have been made in the price of range boilers and prices now in effect remain steady.

SOIL PIPE MAINTAINS STEADY TONE

Winnipeg.

Prices on soil pipe continue steady. Trading on this line is reported quiet by dealers, as the season is practically over. However, prices are well main-

KERR VALVES

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In Kerr Radiator Valves ample metal has been provided to take care of strains where strains occur. Each valve is thoroughly tested and packed before shipment.

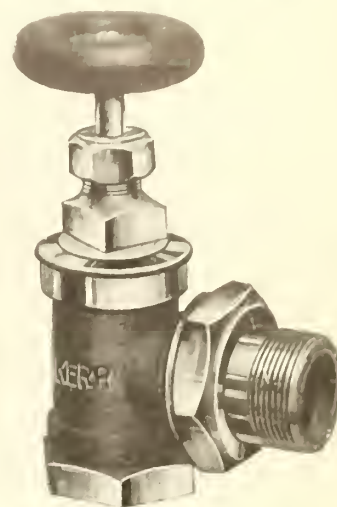
Each Kerr Valve is mounted with best quality black wood wheels and is fitted with the "Radium Disc."

Strength, durability, efficiency, and appearance are so combined in these better valves that thorough and permanent satisfaction is assured.

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No. 34.



No. 39.

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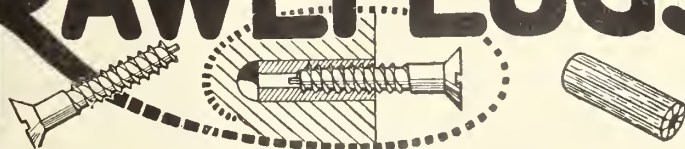
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COUPON

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Montreal.

Gentlemen:—

Please send me samples of RAWLPLUGS and further information that will be of interest.

NAME

ADDRESS

tained and no changes are looked for until early in the spring.

FIRM PRICES MAINTAINED ON COMPRESSION GOODS

Winnipeg.

Sales of compression goods have been on the quiet side and prices show no change as compared with our last issue.

SHEET AND PLATE PRICES SHOW FIRMER TENDENCY

Winnipeg.

Prices of Canada plates and galvanized sheets, though unchanged locally, are showing a firmer tendency on primary markets and indications point to an advance in the near future. There has been a fairly steady demand for these lines.

SEASONABLE DEMAND FOR CLOSET GOODS

Winnipeg.

Sales of closet combinations, bowls, tanks and seats are reported seasonable by the local trade. Quotations remain steady and show no change.

SALES OF RADIATORS AND BOILERS CONTINUE STEADY

Winnipeg.

Sales of radiators and boilers continue fairly active and repair work on furnaces and heaters continues on a wide scale.

EAVESTROUGH AND CONDUCTOR PIPE UNCHANGED

Winnipeg.

Sales of eavestrough and conductor pipe have fallen off with the approach of colder weather. Prices show no change.

THIS YEAR'S INVENTORY IMPORT- ANT TO SANITARY ENGINEER

(Continued from page 13)

the work comes in here. When goods of the "shelf-warming" or slow-moving variety are located (every shop has a few of these lines, no matter how carefully the stock is looked after), the column set aside for special markings should be utilized. A special check mark which means "overstocked" should be known and used in each case when "shelf warmers" are located.

A second mark meaning "understocked" is also used by many dealers for the assistance of the proprietor or buyer when it is found necessary to fill up stocks after stocktaking. This mark may be applied against items of salable lines that have been permitted, either intentionally or unintentionally, to run down. The average salesman has a pretty good idea when a stock is sufficient or otherwise, and these marks can be used to good purpose.

Overstocked items can be picked out later and disposed of at reduced prices wherever they can be best worked in.

The majority of operators adhere to the plan of pricing all goods at pres-

ent cost or replacement value. Damaged or shopworn goods should be "marked down" in price or else repaired and made salable prior to the inventory. Many dealers apply a special mark to shopworn lines, and they are cleaned out later at reduced prices.

The safest and best advice that can be given on stock pricing is to price each item carefully and correctly, and if any deviation is made from replacement prices, it should be made on the conservative side.

It is very necessary to keep track of all incoming goods as soon as the inventory taking starts. Everything which arrives during inventory taking and afterwards, if it is billed on an invoice dated prior to the day set aside as date of inventory, must be included on the stock sheets. These goods should be entered on the stock sheets right off the invoice, then the goods should be tagged or marked "taken" and should not be put into stock until everything is written in. Goods arriving either before or after inventory date, covered by invoices which are dated after date of inventory, should be checked up and also marked "taken," though they are really not entered and have no place in the inventory. Marking them "taken" eliminates the mistake of entering them, should they be labelled "not taken."

Sales Tax Affects Prices

A rather unique situation arrives in connection with the pricing of stocks where the inventory date is set at closing time, Dec. 31, 1923, which will be the case with some merchants.

With the increased sales tax becoming effective Jan. 1, the replacement of most stock would cost more than the cost on Dec. 31, therefore the stock value is enhanced overnight. This is arrived at by taking the difference between the present sales tax, which is in some cases $4\frac{1}{2}\%$, and the new sales tax which will be applied after Dec. 31 of this year. On goods on which $2\frac{1}{4}\%$ is paid, the difference, of course, will be greater, but it is affected by the income returns in the same way. While there will be a tendency to price the inventory in some cases at the enhanced value, the extra work in connection with this plan would eliminate any advantage that this small addition would create.

Remember what was said in the foregoing about being on the conservative side, and, while it is nice to see a large inventory total, it will be found that this increased inventory total will also increase the amount on the return sheet which is subject to Dominion Income Tax. In other words, in following this practice, one would be paying taxes on a small amount prior to the time when this amount is turned over for profit.

An illustration of the point as it would appear on the Dominion Income Tax returns is explained by the two tables which accompany this article. The year's profits are arrived at by adding the opening inventory (which was last year's closing inventory) to this year's pur-

chases, which represent the total "cost" of goods on which the year's trading was done. This total is subtracted from the result obtained by adding the year's sales total to the closing or present inventory.

An example of return sheet on which goods were priced at December, 1923, "costs" only, is given on this page in comparison with a second example of the same figures, with the additional $1\frac{1}{2}\%$ per cent. added to 1923 inventory figures.

It will be readily seen from the comparative tables that, when the inventory at the end of the year is enhanced, the gross trading profit for the year is also enlarged, which will materially swell the amount on which the year's income tax is estimated. This can be avoided by simply ignoring the $1\frac{1}{2}\%$ per cent. change in values which takes place, so far as inventory for this year is concerned, and by pricing goods in the usual way at cost.

Much Office Work To Be Done

Writing in the stock is not the only work to be done by any means. Every minute that can be spared during the evenings and days should be utilized to the fullest extent in the office on the books, and this part of the work should not be left until the last. Of course, it is always assumed that books are posted up to date, or as nearly so as possible. All work of finding the amount of ledger accounts will have been done and records taken.

The existing cash balance at the bank and on hand should be verified and the exact amount struck on the inventory date.

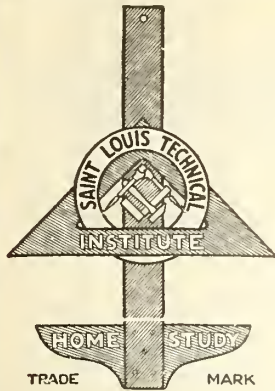
TABLE I.

(Supposed) total of merchandise sold during 1923	\$55,000.00	
(Supposed) inventory of merchandise at commencement of year at cost price.....	12,000.00	
Add cost of merchandise bought for sale, including freight and duty.	40,000.00	
	\$52,000.00	
Less inventory of merchandise at end of year at cost price	\$10,000.00	42,000.00
Gross Trading Profit for year		13,000.00

TABLE II.

(Supposed) total of merchandise sold during 1923.....		55,000.00
(Supposed) inventory of merchandise at commencement of year at cost price.....	12,000.00	
Add cost of merchandise bought for sale, including freight and duty ..	40,000.00	
	52,000.00	
Less inventory of merchandise at end of year at cost price, (adding on the extra $1\frac{1}{2}\%$ per cent. after Jan. 1, caused by increase in sales tax)	10,150.00	41,850.00
Gross trading profit for year		13,150.00

Canada's total Empire exports for the year ending October amounted to \$438,619,618, as compared with \$379,266,150. Imports from other parts of the Empire during the year amounted to \$197,195,180, a gain over the \$165,758,679 in the previous year.



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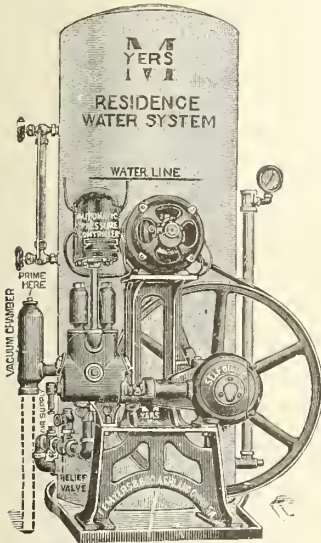
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The outfit consists of an air-tight steel tank which can be placed in the basement, and a "Myers" famous guaranteed pump (hand or power), suitable for pumping air or water, together with pipes and fittings.



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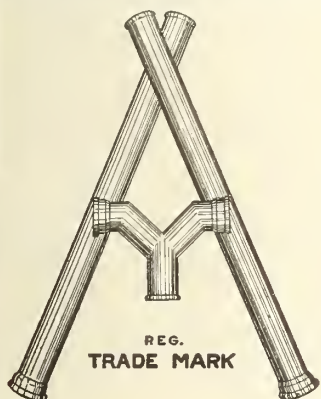
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Galt Brass Co., Limited, Galt.
Kerr Engine Co., Ltd., Walkerville.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
Standard Sanitary Mfg. Co., Ltd., Toronto
Hamilton.
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Wolverine Ltd., Toronto, Ont.
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Hamilton.
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DAMPER REGULATORS

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Empire Mfg. Co., Ltd., London and Toronto.
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Hamilton.

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Hamilton.
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Yuletide Greetings

TO ALL members of the trade we extend Christmas Greetings and Best Wishes for success in the New Year.

And we wish to greet in a very special way all who are associated with us in the selling of King Boilers and Imperial Radiators.

In 1924, as in the past, we shall strive to maintain the quality of our product, to improve it when found possible and to give you a coast to coast service.

We thank you for your past patronage and support; we shall try to merit its continuance in the future.

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Smart Turner Machine Co., Ltd., Hamilton, Ont.
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Gurney Foundry Co., Limited, Toronto
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Standard Sanitary Mfg. Co., Ltd., Toronto, Hamilton.

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Empire Mfg. Co., London and Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.

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Crane, Limited, Montreal, Que.

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Empire Mfg. Co., London and Toronto.
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Kerr Engine Co., Walkerville, Ont.
Smart Turner Machine Co., Ltd., Hamilton, Ont.

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C. A. Dunham Co., Ltd., Toronto.
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J. E. Farrell, 210 Galley Ave., Toronto, Ont.

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Gurney Foundry Co., Limited, Toronto.

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Gurney Foundry Co., Ltd., Toronto.

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SYSTEMS—SCHOOL

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TANKS—STORAGE

Steel Trough & Machine Co., Ltd., Tweed, Ont.

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W. H. Cunningham & Hill, Ltd., Toronto.

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H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
Smart Turner Machine Co., Ltd., Hamilton, Ont.
Standard Sanitary Mfg. Co., Ltd., Toronto, Hamilton.
Steel Trough & Machine Co., Ltd., Tweed, Ont.

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We Extend
Hearty Christmas Greetings

 OUR message is short but packed with good will and sincerity. May you have the happiest Christmas ever, and may 1924 usher in for you a year of good health and good business.

TORONTO HARDWARE MFG. CO.
LIMITED



The Measure of Your Message

THE measure of your message is the number of actual readers reached by the publications carrying your advertising.

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Sanitary Engineer is the only plumbing and heating paper in Canada that has submitted its circulation to an audit by the Audit Bureau of Circulations.



Christmas 1923

Greetings from the
Staff of
Sanitary Engineer



TO the many advertisers and prospective advertisers with whom we have had the pleasure of co-operating in the past year—

To the subscribers who have so often helped us with information

—And to all our readers, everywhere, we extend our best wishes for a Merry Christmas and a Happy and Prosperous New Year.



*To the Good Friends of
Business—
Heartiest Christmas Greetings.*

FRIENDLY relations in business, built up on good faith and mutual respect, are one of the finest reflections we can have at the Christmas season. We are happy in the conviction that our customers are our friends, that the folks we live with in a business way are human, companionable, amiable beings, square and fair — and we hope they may have the things that will make them happiest during the coming year.

H. MUELLER MFG. CO., LIMITED, SARNIA, ONT.

Water, Plumbing and Gas Brass Goods and Tools. Forgings in Brass and Bronze. Screw Machined Products. American Factory at Decatur, Ill., U.S.A. Branches: New York, San Francisco and Los Angeles, Cal. Mueller Metals Co., Port Huron, Mich. Makers of "Red Tip" Brass Rod, Brass and Copper Tubing.

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If you have a complicated steam job, stop merely trying and have our expert immediately give it the "once over". Stop wishing—let us rip into the trouble for you. Other—do it.

In the solving of steam and condensation problems, whether it is steam process or heating work, we can be of service to you, being specialists in this line.

If you are interested in giving your customers the most economical, efficient, and dependable type of equipment for service in returning condensation and boiler feeding, write us for information.

Farrfhern Steam Service

Limited

304 Manning Chambers, Toronto



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Easier to attach

More permanent

Cost less



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THOROUGHLY INSPECTED

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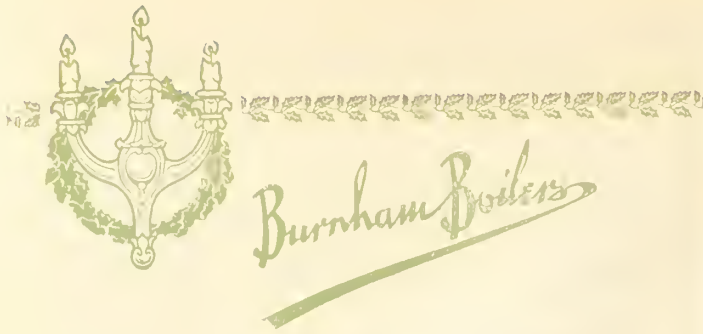
Ask your Jobber for C. T. Brand Wrought Pipe

Canadian Tube and Steel Products Co., Ltd.

Operating Canadian Tube & Iron Co., Ltd., Works at Lachine Canal Montreal.

SANITARY ENGINEER'S

unique circulation as proven by the A.B.C. Audit is due to our honest effort to give the retail trade the best possible service.



Merry Christmas

WE TAKE this opportunity of thanking the trade for the many courtesies extended to us in the past year. We wish you all A Merry Christmas and a Happy, Prosperous New Year.

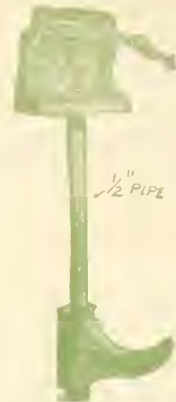


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of Canada

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YOU'LL USE 'EM YET!



STYLE R

Make installing a quicker, easier job for you; better looking, more convenient, more sanitary, for the house-owner.

For ANY style radiator; any type wall construction.

Many other advantages.

Write for full information.

Made in Canada

Healy-Ruff Co.

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Greetings to the Trade

On behalf of my associates and myself I wish to thank the sanitary engineers of Canada for the warm support they have accorded us and our products in the year now closing.

In 1924 it will be our aim and effort to render you even better service and provide you with better merchandise than ever before; we ask the favor of your continued patronage.

To each and every one of you a Merry Christmas and a Happy New Year.

T. G. GRIFFITH,
General Manager.

T. G. Griffith & Company

165 King Street East

TORONTO

ONTARIO



DART UNIONS

Union Pipe Couplings

are practically indestructible because they are made of Heavy Malleable Castings, and the joint being Bronze against Bronze, gives the strongest kind of guarantee that the Dart will stay as tight as it is first made when screwed to a pipe line.

The Dart's reputation is based on the opinion of others; ask anyone who has had experience with Dart Unions, regarding their efficiency.

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Agents :

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MANITOBA AND NORTHWEST:
E. B. Plewes
197 Princess St., Winnipeg



THIS Christmas time we pause for a moment in the laudable task of making known the virtues of our products to reflect that it is due largely to the good will of the trade that our business for 1923 has been so satisfactory.

We thank you; and we wish you all a very Merry Christmas and a Happy, Prosperous New Year.



Galt Brass Co. Ltd.

Galt = Ontario

Exclusive Manufacturers of

VitrO Tanks, Teck Flush Valves,
Perfecto Brass Goods

